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ABSTRACT

Examples of effective economics teaching from kindergarten through college, contained in this eighth volume of the Joint Council for Economic Education series, are selected from the 1969-70 entries in the Kazanjian Foundation Awards Program for the teaching of economics. Arranged by grade level, these 18 descriptions of original, teacher-developed programs provide class type, scope and duration of activities, goals of the activities, motivational devices and initiatory activities, teaching techniques, photographs or samples of student work, culmination activities, and evaluation techniques--all of which are elements judged in the awards program. At the end of each grade level chapter is an appendix entitled "Good Ideas in Brief." Teaching experiences described include using simulations, combining creative writing with economics, bringing economic principles home to the student, teaching slow learners, and approaching economics as a cultural phenomena. A final chapter, "The Status of Research in Economic Education," an overview of economic education, gives brief descriptions of recent research projects at all educational levels. A cumulative index for the previous seven volumes in this series completes the document. (JH)

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ECONOMIC EDUCATION EXPERIENCES OF ENTERPRISING TEACHERS

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A Report

Developed from the 1969-70 Entries in

The Kazanjian Foundation Awards Program for the Teaching of Economics

volume **8**

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GEORGE G. DAWSON, *Editor*

Joint Council on Economic Education
1212 Avenue of the Americas, New York, N.Y. 10036

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FOREWORD

We believe that Volume 8, *Economic Education Experiences of Enterprising Teachers*, reflects a continuation of the high standards achieved by the annual Kazanjian Awards Program for the Teaching of Economics. Our times demand teaching that is relevant, exciting and effective, and we are confident each reader will find descriptions of such teaching experiences in this publication. Combined with the experiences described in previous volumes which are indexed in the final pages, a reservoir has been developed from which teachers, curriculum developers, professors of methods courses, and authors can draw to improve economic education at all grade levels and for students of varied abilities and interests.

In the beginning years of the economic education movement, one of the deficiencies of in-service programs for teachers was the scarcity of specific, practical, proved examples of effective teaching which could be provided to the participants in a convenient form. The volumes of *Economic Education Experiences of Enterprising Teachers* now help to meet this need in the economic education workshops for approximately 3,000 teachers each summer, as well as for many thousands more in the programs conducted throughout the school year.

Last year the ceremony to honor award-winning teachers was held in conjunction with the annual meeting of The Association for Supervision and Curriculum Development. In addition, the teachers participated in sessions to demonstrate economics in action and were available for consultation throughout the conference. We are pleased that similar arrangements have been made for the 1971 annual meeting being held in St. Louis so that the benefits of the awards program can be shared more widely.

Once again we invite teachers to submit entries to the Awards Program and to avail themselves of assistance from the Affiliated Councils and Centers for Economic Education throughout the nation. Application forms can be secured from the Affiliated Councils or by writing directly to the Joint Council. Reporting of teaching experiences in business education, with students of the inner city, or on the collegiate level has been limited in past years and any teachers having such experiences in economic education are urged to participate in the Ninth Annual Awards Program now underway.

The Joint Council offers its appreciation and commendation to Dr. George

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G. Dawson for serving as editor of this publication. We are indebted to Mr. John C. Schraram, Managing Director, and the Board of Trustees of the Calvin K. Kazanjiar Economics Foundation for their continuing support of the Awards Program, this publication, and the associated services to enrich the program.

GEORGE L. FERSH, *Associate Director*
Joint Council on Economic Education and Coordinator, Kazanjian Foundation Awards Program for the Teaching of Economics

Source

EDITOR'S INTRODUCTION

The job of editing this book is both a pleasant and a frustrating experience. It is pleasant because it gives one the opportunity to examine at first hand the creative endeavors of dedicated teachers at all educational levels. One cannot help but be amazed at the way in which teachers manage, year after year, to develop new and better means of presenting economic facts, concepts and principles in their classrooms. Each year we fear that the well will run dry—that every possible means of teaching economics has already been thought of, and that those in the field cannot possibly come up with something new and different. And each year—happily—we are wrong! The job is frustrating because it is possible in most cases to include only a portion of each project in this book. Thus, what the reader sees here is often only a fraction of the original. Fortunately, those who wish to examine the originals may obtain them from the Kazanjian Economics Materials Library at Ohio University.

Those who are contemplating submitting an entry to the Kazanjian Awards Program, and those who have submitted entries but failed to win, might profit from a generalized description of winning projects. It must be realized that the articles published in this book are usually condensed versions of the original reports, and that some of the material teachers submit cannot be depicted or even described easily. The characteristics of a prize-winner are as follows:

1. The project shows *originality*. It is more than a rehash of someone else's work, or at least it gives an entirely new "twist" to an idea developed in a previous year. Ideas that captured awards in years past tend to become "old hat." This does not mean that they are not good, but simply that the awards must go to those who come up with newer ideas.

2. The *class situation* is clearly described in the better reports. The judges want to know what ages, ability levels, or special characteristics apply. If the students represent a particular socioeconomic or ethnic group, the judges should know this. (See, for example, Sally Noe's article in Chapter 4.)

3. *Scope and sequence* are set forth. The reader should be told at the very beginning whether the project describes a year-long or semester-long course, a six-week unit, a special project of three-weeks duration, a single lesson, or whatever. If it is less than a full course, the author should show how the project fits into the course being taught, and how it was related to material that preceded or followed it.

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4. *Goals are listed* in specific terms. How can a reader judge a project unless he or she knows what specific understandings, facts, skills, habits, attitudes, or behavorial changes the teacher wished to impart?

5. *Motivational devices* are spelled out and *initiatory activities* are described. How did the teacher get the pupils interested in the subject to be taught? How did he or she then start the course, unit, lesson, or project?

6. A step-by-step account of *teaching techniques* is given. It must be remembered that the basic purpose of the Awards Program is to help other teachers. These projects can serve others only if the author gives the details of the methods employed. It is not enough simply to say that a panel discussion was held—the reader should see exactly how the panel was set up, what preparations were made, how this activity fit into the total project, how it was evaluated, and so on. Where appropriate, sample lesson plans should be included, along with such items as assignment sheets, instruction sheets that might have been prepared for the students, and the like.

7. *Photographs* or *samples of student work* are included. Photographs of bulletin board arrangements, table displays, murals, and other items which cannot be shipped are welcome. It is not necessary to submit large posters or bulky objects if a photograph will suffice. Neither is it necessary to send in everything the students have done. One or two typical term papers, for instance, will do.

8. The *culmination* of the unit or project should be explained. Good teaching units have three basic parts: (*1*) initiatory and motivational activities; (*2*) developmental activities; and (*3*) culminating activities. The first help to get the pupils interested in the unit, project, or lesson; the second develop the ideas, concepts, skills, understandings and attitudes listed in the goals; and the third bring the experience to a close by summarizing and applying that which was taught. Plays, assembly programs, displays, field trips, the making of films or filmstrips, simulations, and many other activities can be used to culminate a unit.

9. *Evaluation techniques* should always be included in the reports. These generally include tests of all types (short-answer, essay, and performance examinations), but can also include less formal things, such as self-evaluations by individuals, groups, or the class; written or oral evaluations by outsiders; and observations of pupil behavior. Samples of testing instruments ought to be submitted with the reports, along with the results.

10. Finally, attention to the *requirements* as set forth in the Awards Program application form, an *orderly arrangement* of the material, and simple *neatness* are appreciated.

The educator who attempts to include each of the 10 characteristics outlined above will have a good chance of winning. It should be noted, however, that the competition is keen, and that each year it becomes more difficult to win than it was the year before. Prospective entrants would be well advised to seek the comments and criticisms of others before submitting their projects. In particular, the teacher whose formal preparation in economics is minimal should consult an economist regarding the accuracy and appropriateness of the economics contained in the report. Many projects which represent an enormous amount of time and effort, and which contain superb ideas and materials for teaching, fail to capture an award simply because they contain little or no economics or because the economic content is inaccurate.

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The Editor hopes that this brief summary of what constitutes a good project will be useful to educators. He deeply appreciates the work of those teachers (nonwinners as well as winners) who are contributing so much to the elimination of economic ignorance in our society. It is hoped that more and more teachers will enter the Awards Program in the future, sharing their knowledge and experience with others for the good that this can do as well as for the possibility of financial rewards.

The Editor acknowledges with sincere thanks the cooperation of the teachers whose ideas appear in this volume. They have been most patient and understanding in permitting us to use their material and in agreeing to our many editorial revisions. The encouragement and support of Mr. John C. Schramm, Managing Director of the Kazanjian Foundation, has helped immeasurably to make this book possible.

GEORGE G. DAWSON

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Primary Level: Grades K-3

The Economic Growth of an Industrially Centered Community

A Third-Grade Project

Nancy Braden and Margaret Roberts
Bonneville School, Fort Smith, Arkansas

Background

We have felt for some time that education involves more than the ability to solve problems. We are finding that what we once thought were the "right answers" often go out of date. A person must have a knowledge of his environment and learn how to cope with it. We want, then, to teach our pupils how to find answers and how to think independently. Only in this way can we prepare them for a future world whose nature is unknown to us at this time. It was our hope that by allowing children to discover the economic reasons for changes that have already taken place they might gain insight into present changes and be prepared to understand future developments.

Fort Smith is an excellent example of how continued growth can result in an industrially centered community. We decided to devote an entire academic year in both of our third-grade classes to a study of Fort Smith from its beginning as an army fort in 1817 to a modern, thriving community of over 70,000. To help ensure that economics would be the focal point of the study, we titled it "The Economic Growth of an Industrially Centered Community."

Development

To initiate the study and arouse pupil interest, we planned a class trip to the Fort Smith National Historic Site. Some time was spent in preparation for the trip, so that the children would understand what they were to look for, how our time could best be utilized, and what information we hoped to gain by the experience. It was our intention to draw upon the knowledge gained from the trip throughout the study. Not only did this tour give us a feeling for the past, it enabled us to see some basic economic facts as related to Fort Smith's early years. For example, we saw at first hand the natural resources which were important in the choice of the original fort site, and we could visualize the workers of old using their crude and scarce capital goods to produce other goods and services.

Resource persons were used frequently throughout the year. A representative of the Chamber of Commerce visited the classroom to explain how indus-

tries affect the community. He not only described the direct effects, such as the jobs and income created, and the production of the goods and services used by the community, but he also explained how more retail businesses appear and how greater demands are placed on the public schools, for example. So many questions were raised that a second visit was necessary. The children even learned the meaning of "revenue bonds" during this presentation.

Many parents contributed to this project. One boy's father owns a firm which manufactures lamps. He explained the role of the entrepreneur in our economy and explained the benefits of division of labor. To illustrate the concept of interdependence, this businessman assembled a lamp with several parts, each of which came from a different country. The importance of transportation in economic growth was discussed by a parent who is president of a freight company. His talk was illustrated with the film "Lifeline on Wheels" which showed various phases of economic growth and included such topics as interdependence, the flow of money, specialization, labor, technology, money income, real income, opportunity cost and competition.

The role of capital and the way in which banks help promote economic growth was described by a bank official. Loans, checking accounts, savings accounts and the flow of money were explained. The banker stressed the manner in which banks assist industries to get started or to expand. A corporate executive told us how his firm uses the raw materials of the area in manufacturing glass, how his company relies upon other industries (such as the transportation industry), and how it affects the economy of the community. The latter point was cleverly illustrated by his explanation of how some of the income generated by the corporation finds its way into the hands of the children.

We did not ignore the producers of services in our economy. A civil engineer told us how he and his associates contribute to economic growth, as their work is essential in the planning of dams, bridges and buildings. He, too, illustrated the concept of specialization by explaining the contribution of everyone from secretaries to draftsmen in the construction field. The roles of the various factors of production—land, labor and capital—were also described in relation to industrial construction. The children learned a great deal about costs at this point, as the visitor explained how planners weigh construction and maintenance costs against the amount of money that a project is expected to bring into an area.

Our previous study of natural resources was reinforced by some of the guest speakers. An official of the Water Department informed us about the way in which the community is assured of an adequate supply of clean water, and a parent who supplies equipment for drilling gas wells talked about the natural gas around Fort Smith. It is interesting to note that by this time the children were able to draw their own conclusions about the use of specialization, capital and technology in relation to this product.

Government's role in a free enterprise economy was approached through a study of those public services which are familiar and interesting to young children. The Chief of Police and one of his officers visited the class. The pupils could see that there are services which we "consume collectively" and that a community must offer these services if it expects to grow economically. (This was easily related to the initial field trip, for one of the most fascinating parts of the trip was the visit to the courtroom of Judge I. C. Parker, the famous jurist whose arrival in Fort Smith in 1876 signalled the beginning of law and

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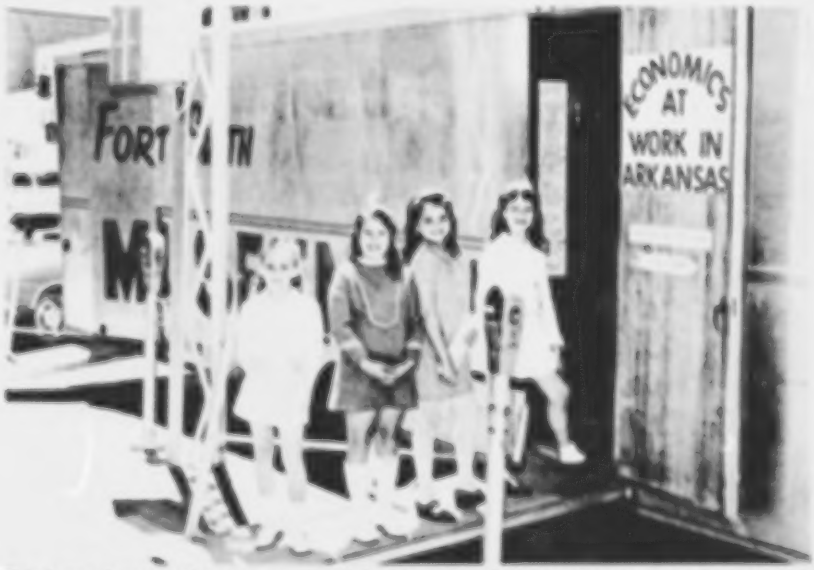
order.) The policemen revealed that before moving into a new area an industrialist investigates the adequacy of police protection and other public services. This presentation was reinforced by the visit of a retired fireman, who traced the growth of the fire department from the first volunteer bucket brigade to the highly mechanized and efficient agency of today. This speaker related the growth of the fire department to the economic growth of the community, showing how more men, better training and improved technology became necessary as the town grew. Finally, a member of the State legislature, who is an announced candidate for Governor, discussed government in a general sense, and helped to clarify the functions of the various levels (local, state and federal).

Interclass cooperation was an important part of our activities. In one role-playing situation, one class advertised for employees while the pupils from the other class applied for the jobs. This particular activity enabled the children to see that one must study and prepare for an occupation, and be as concerned with what one must *bring* to a job as well as what one expects to get from it. In another project, the pupils in one room established stores and the children in the other acted as consumers. In pricing their products the sellers had to consider such things as advertising costs and taxes. The buyers were confronted with the opportunity cost principle, as they quickly found that if they spent too much on one item they would be sacrificing something else that also appealed to them.

Culminating Activities

Every teaching unit should end with an activity which serves to summarize the work of the unit. This can be much more than a simple and rote repetition



Third graders at the Bonneville School share their economic knowledge with the public and with other students in the Fort Smith, Arkansas, school system through exhibits in the "Museumobile."

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of "what we learned." Ideally, a unit should be culminated with one or more activities which require the pupils to *apply* the facts and concepts that were taught. It is often said that one of the best ways of learning something is to have to teach it to someone else. Teaching, of course, takes many forms other than the usual classroom routines. One of our culminating activities took the form of a play that would help to teach some of our learnings to others. Preparation for the play required the children to review the work of the unit and to apply it in an imaginative way. (Incidentally, this also serves as part of the evaluation of the unit, for the teacher is able to ascertain how well the pupils understood the concepts as she observes them in preparing to dramatize the material.)

A two-act play was decided upon, with the first act covering the early history of Fort Smith and the second dealing with present-day situations. The first act stressed the problems that the people had to deal with when they lacked modern technology and when specialization was minimal. In the second act, two industrial plant representatives were seen evaluating Fort Smith as a possible location for their firms. Both the positive and negative aspects of the area were presented and the dramatization included an emergency meeting of citizens concerned with making improvements.

Another culminating activity enabled us to share our learnings with other schools and with the community. After visiting our classrooms several times, the Director of Elementary Instruction for the Fort Smith Public Schools offered us the use of the school's "Museumobile," a large trailer. The pupils arranged displays which depicted how Fort Smith might look to a prospective industrial client, the capital and labor available locally, the area's communication and transportation facilities, the educational system, the natural resources of the region, our various utilities, and the consumer market. Our classes also prepared a study guide for the use of the other schools that would be visited by the "Museumobile." This two-page guide contained questions that the exhibit would answer for the other students, such as:

- What are the factors of production?
- How does city growth affect you?
- Who decides what is produced?
- What is the money flow?

It also listed terms to know—money income, capital goods, entrepreneur, division of labor, competition, opportunity cost, and many others. The study guide was sent in advance to all elementary teachers, grades three through six, with a note from the Director of Elementary Education. The "Museumobile" was also parked in the downtown area for two days so that the public could view our exhibit.

Evaluation

In preparing and presenting the play and in setting up the "Museumobile" displays and guiding visitors, the children demonstrated their grasp of the economic facts and concepts that we had studied. Most revealing, perhaps, is the fact that the children repeatedly related economics to all areas of the school curriculum. They were asked to write evaluations of every phase of the study, and the essays often showed an impressive understanding of the application of economic concepts to everyday life. Even those students who are usually

considered "slow" and disinterested were caught up in the enthusiasm and the desire to learn. The children realized that they, as well as adults, are citizens of the community and have responsibilities in making it economically sound.

Our work was described in the local press, in business publications and on television. We received letters of commendation from school officials, teachers, businessmen, the Mayor of Fort Smith, the Minority Leader of the Arkansas House of Representatives, and parents. Although it refers to only one aspect of our study, one letter should be quoted in its entirety:

THE WHITE HOUSE

WASHINGTON

March 17, 1970

Dear Girls and Boys:

It was heartening to learn of your strong interest in stopping the pollution of our natural environment. All American citizens, young and old, must work together if we are to succeed in making our country the clean and healthful place all of us want it to be. You can help in this effort, first by learning all you can about the causes and effects of pollution and the ways of remedying it, and then by setting an example for others to follow.

With my best wishes for the years ahead,

Sincerely,

Richard Nixon

Pupils of Miss Barden's Third Grade Class
Bonneville School
Fort Smith, Arkansas 72901

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Economic Odyssey

A Joint Venture of Kindergarten and Sixth Grade

Susan J. Donielson
Elmwood School, Des Moines, Iowa

Background

To ensure progress, our society needs thinking, knowing and skilled people. If we are to put our faith and trust in people, we must be assured of their ability to apply trained intelligence. A basic economic problem is finding how best to produce more goods and services to meet increasing human wants and needs—and how to do so at the least possible cost. Because the future utilization of our scarce resources will be in the hands of today's youngsters, we must begin now to develop in them the knowledge and skills they will need to cope effectively with this awesome responsibility.

Children of kindergarten age are bursting with natural curiosity, and there is no doubt that they are eager to learn and capable of taking an active part in our economic society. Economic concepts are closely related to the lives of young children. They shop in the supermarket with their parents, visit small neighborhood stores on their own, learn about family occupations, see and hear commercials on television, and are even involved in family discussions of expenditures on food, clothing, trips, housing and the like.

These economic experiences, however, often have little meaning for the child who lacks a conceptual frame of reference for organizing, relating and evaluating them. For instance, almost every five-year-old will inform you that the clerk at the checkout counter "gives you money," for he does not see that the change is less than the amount you paid. He notices all the goods in the store but does not understand how they got there. He does not understand pricing, buying, selling, supply or demand, and he even fails to distinguish between the customers and the employees.

Bearing in mind that much planning is necessary to help children build a real understanding of economic concepts, I planned to introduce the following to my kindergarten class:

- The family is a basic economic unit.
- People in most places are interdependent.
- Division of labor is found in most societies.
- Division of labor usually results in increased productivity.
- Most people receive money payments for the work they do.
- Machines often make it possible to produce more goods in less time.
- Sellers expect to make a profit if they are to stay in business.
- Productive resources are utilized in satisfying our wants and needs.
- Human wants are usually greater than available resources.
- Workers may produce goods, services, or both.

I also wanted the pupils to learn how a business operates, why goods and services have prices on them, and the function of banks.

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The project was planned to be flexible, open-ended and child-centered. It required an analysis of the previous experiences and information that each child was bringing to the project and a constant review of our progress. The idea of involving sixth graders was prompted by several things. Our school is considered an inner-city school and many of the community's conflicts were becoming evident within the building. Influenced by high school youths, many sixth graders were displaying negative attitudes toward the "Establishment." I felt that these children needed to understand our economic structure, to develop pride in their school, and to acquire a sense of responsibility toward the younger pupils.

As the success of our joint venture would depend upon the attitude of the sixth graders, my most difficult task was that of relating to them and to their needs. I wanted to establish the feeling that we were dependent upon their involvement while at the same time helping them to develop a better understanding of their economic community. Fortunately, the sixth-grade social studies teacher and the principal saw this project as having great value for all concerned, and released time was scheduled for the older children. Their participation was established on a voluntary basis, the only restriction being that they stay with the project and complete any work they had started. Although much of the work on our project came out of their own time, there was no problem in getting volunteers.

Development

Our study began with a listing of ideas to be developed, along with the vehicle to be used to ensure their development. The main classroom experience was to be a simulated household center, a classroom store, and a model school plant with its workers. Each of these centers would have items added to them from time to time to keep interest alive and provide opportunities for further exploration. The study of economics began in early fall and became an ongoing activity throughout the year. At times economics overshadowed everything else, while on other occasions it was but one of several daily activities. It depended on pupil interest and other circumstances. Some of the experiences planned and executed were as follows:

- A housekeeping center.
- A store center.
- A school building with equipment and personnel.
- Trips to stores, a bank, a barber shop, a dairy, a shoe repair shop, a cleaner, the fire station and the post office.
- Making lemonade to illustrate division of labor.
- A Christmas tree project to illustrate unlimited wants and limited resources.
- A "looking trip" to learn about prices and businesses.
- "Market research" to select a marketable product for us to produce.
- Determining the costs of producing the product.
- Learning the functions of a bank.
- Producing, advertising and selling a product.

In early September we focused upon the school—its function, the productive activities of those who work in it, and our own place within it. Each school helper was studied in terms of his role as a producer, what training he needed,

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and what tools and equipment were necessary for him to do his job. We visited each helper to get a personal explanation and invited each to come to our room for further discussion. We made a class scrapbook containing stories about each school helper. From our discussions about school helpers the children began to develop pride in the school and made rules about their own responsibilities to help make the workers' jobs easier and save time and supplies.

As Halloween approached, the children were eager to make jack-o-lanterns. This necessitated a trip to a fruit stand to select the pumpkins. Choices had to be made regarding size, how much to spend, and the number we could afford. Questions were raised on how the pumpkins arrived at the market and what workers were involved, how much the farmer received, and what determined the market price. An awareness of production, pricing and decision-making began to develop.

Next, our economic study emphasized families. We examined similarities and differences of families and their needs. The sixth graders produced models of different types of homes and prepared reports showing the basic necessities of families. The children began to see the family as both a producing and consuming unit, noted how wants change and how choices are necessary, and saw how families divide the work to save time, effort and resources. We had seen how labor is divided within the family. To broaden their understanding of this concept, I had each child wash his own table after using paste. There was mass confusion as everyone tried to use the same equipment at once, and the clean-up took so long that we missed our game time. The next day we divided the work, thereby using fewer sponges and much less time.

In November, Thanksgiving and Open House were the objects of attention. I added a large fold-out picture story of the first Thanksgiving to the library center. Interest grew and many questions were raised about the Pilgrims, the Indians and that first feast. Although the children questioned their parents and did library research to learn about those "olden days," they could not comprehend that I wasn't there for that first Thanksgiving! They did realize, however, that our early families lived a different type of life from theirs.

The term "barter" was introduced. To help them understand the function of money as a medium of exchange, I had them engage in barter first. They experienced the frustration of having to trade many times to get what they wanted through the barter system. This led also to the role of money in expressing the value of an item and in making it possible to save for the future.

The fall harvest presented an opportunity to discuss farming. We traced plants from seed to the time they arrived at our tables, noting the various specialists and producers involved all along the way. We combined the fall harvest with interest in Thanksgiving and planned a feast. Earlier experiences in choice-making and division of labor were now reinforced during the trip to the market to purchase supplies and the preparation of the meal. Indeed, by this time division of labor had become a daily routine. Vegetable soup was made and served to our guests from another kindergarten class. Suitably costumed, my class acted as the Pilgrims while the visitors were the Indians.

Christmas presented a golden opportunity to explore wants and needs. Individual Christmas trees were cut from paper and pictures of each child's wants were placed on them. The emphasis was upon how families earn and spend their money incomes. We made large charts showing how wants vary with age, sex and other conditions. The study of family income revealed that the

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fathers had many different jobs, so once again the subject of specialization was discussed. We also noted what each parent's job demanded in the way of training and experience and found that those requiring special training paid a higher wage or salary. Much time was spent in distinguishing between producers of goods and producers of services, for this can be difficult for a five-year-old. By coupling the study of family incomes with the children's wants, it was possible to help them see that not all of their wants could be realized. Each child then indicated which was most important to him. (Parents took an interest in this phase of the study.)

After Christmas vacation we further developed the concept of money. Empty food cartons and cans, pictures of foods, cash register tapes, play money, advertising posters, grocery carts, telephones, scales and other props were added to the store and housekeeping centers. Before, the cash register had been treated simply as a toy—the keys were punched indiscriminately, the drawer pulled out and jammed with paper, and so on. The introduction of money brought a remarkable change. Now sales were rung up by pushing only the appropriate keys. The drawer was opened and closed carefully so that the money would not drop to the floor. Coins and bills were identified and placed in the proper compartments with great care. Several techniques were used to teach them to identify various denominations. For example, items containing price tags were placed on a bulletin board, with a small container beneath each one. The children were to place the correct amount of money that it would take to purchase the item in its container.

Putting realistic prices on items was, of course, more difficult. At first they needed a great deal of guidance in the store center. Then one of our visitors, the manager of a grocery, brought items for the children to mark. She explained how prices are set low enough to appeal to customers but high enough to yield a profit. Many weeks were spent in investigating how businesses operate, and this involved visits to many firms.

We concluded our study of businesses by establishing a factory. The children applied for jobs, were interviewed, and given time cards when "hired." The cards were punched each day and the workers received a daily "wage." Lemonade was produced, and the children could purchase it with their earnings. It soon became clear that those who were more productive received more pay and could buy more lemonade. We then planned a "Come Make Believe Day." Each child prepared a costume to illustrate what he wanted to be when he grew up. The kindergarten children worked in teams with sixth graders who gathered information about the training, tools and equipment that would be needed for each chosen occupation.

Through continued experience in the simulated housekeeping and store centers, the children developed a more sophisticated awareness of the roles of consumer and producer, the flow of money between households and businesses, and economic interdependence. As the end of the academic year approached, I felt that they were ready to move from play situations to "the real thing." The P.T.A. had been raising funds all year to pay for new ceiling tiles in the lunchroom, but they were $50 short. Both the kindergarten class and the sixth graders were receptive to the idea that we could do something to help. We decided to produce and sell a product.

First we made a 'market survey' to see what could be sold in the school. Each child made a list of wants, limited to items costing no more than 15¢. The

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"Happiness is seeing kindergarten children learn economic concepts!" says Mrs. Susan Donielson of the Elmwood School, Des Moines, Iowa.

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sixth graders studied prices of materials that would be needed to produce cookies, the item that seemed to be a sure-fire seller. The principal came to our classroom to discuss how much would be charged for the use of electricity, water, working space and janitorial services. Selling prices were established, and orders were taken. Using these orders as "collateral," we went to the bank to obtain a loan of $100. Supplies were then purchased and production began. Advertising took the form of verbal announcements in classes, posters and letters to parents. We made two kinds of cupcakes and eight varieties of cookies, naturally using a well-planned division of labor. The children conducted the sales, carefully making change. When the proceeds were counted, they were thrilled to learn that we could easily repay the loan, donate $50 to the P.T.A. and still have money left over. Careful accounts had been kept of all money received and purchases made. A "company party" was held with part of the profits from the 247 dozen cookies we had sold.

Outcomes

The school year ended with feelings of pride, accomplishment, cooperation, and friendship. Not only were many important economic concepts learned, but equally important social understandings and attitudes had been developed as a result of this team effort in reaching a common goal. Everyone involved gained from these encounters—the children, school personnel, parents and members of the community. Everyone had been touched in a positive way by this elementary study of our economic society.

Why a Highway?

A First-Grade Study of Economic Concepts

Berthola La Rue
Berryville School, Berryville, Arkansas

How It Started

Educational specialists often tell us that the key to effective teaching is motivation: stimulating the pupil to take an active interest in the topic for study. It is often necessary for the teacher to design some sort of experience that will arouse the interest of the children and relate this experience to the lesson or unit that she has planned. Another approach is to seize upon some unplanned incident or event which has captured the attention of the class. It was the latter technique that was used to initiate a study of economics in my first-grade class.

During the first semester, the children had entered into a brief exploration

Editor's note: This article is condensed from an original report over 100 pages in length.

of the economy of Mexico and had begun to build a vocabulary in economics. The "inquiry approach" was familiar to them, and "We learn by asking why" was already an established maxim in the class. These understandings and attitudes were to be put to good use when a few pieces of heavy construction equipment arrived in our town, for the children were agog! As an Ozark mountain town of just over 2,000, without access to air, rail or water transportation, Berryville is dependent upon its highway. The long-awaited rebuilding of U.S. Highway 62 connecting Berryville and the neighboring town of Green Forest was about to begin and interest was extremely high.

Our local economy is based upon cheese products, processed fowl, garment-making and tourism. Improvements in the highway could affect each of these industries. My first graders were demanding an explanation for the presence of the huge and colorful machines and for the men who ran them. I, in turn, wanted them to justify the expenditure of the taxpayers' dollars for the economic advancement of our area. An examination of both cause and effect would be the focal point of our unit of study.

Development of the Unit

Numerous questions were raised and discussed in class. It was shown, for example, that a better highway would make it easier and cheaper to transport the goods we produced to the markets, and that tourists would find it more convenient to come to our area. We saw how this could help make the economy of the region grow. The children wanted to know what it would cost to build the highway and this led to an examination of a number of economic concepts. They saw that many different specialists would be needed and that each would have to be paid. More land would have to be purchased, the machines and their upkeep would be very costly, plans would have to be drawn up, and materials would have to be brought from other areas by truck.

Then came the question: "Where will we get the money?" It was explained that the state and federal governments would pay the cost, but that they obtained the money through taxation. The fact of the income tax was a revelation to the children, but they were most fascinated by the knowledge that they, too, pay taxes when they purchase certain goods. Each answer that was provided led to further questions, for pupil curiosity was insatiable, and our discussions even led to an awareness that natural, human and capital resources would be required for the improvement of the highway.

While interest in the highway was the strongest motivating factor, it should be noted that it did not totally dominate the discussions. During the month of March, for example, many children heard their parents talking about the income tax and they learned that tax revenues are used for paying the salaries of public officials, for constructing public buildings, and many other things besides highways. As they rode to school or went on pleasure drives with their parents, the children took note of the many different specialists working on the road and how they depended upon one another. Throughout the class discussions we were constantly reminded that the goal of economic activity is to satisfy the needs and wants of people.

Liberal allowance was made for the free flow of conversation. At times this results in repetition and the presentation of irrelevant ideas. Each pupil had the opportunity to express his opinions and each was given the dignity of an audience. The shy children became less reluctant to join in, even though all

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ideas were subject to evaluation. Thus, the class gained experience in testing ideas for relevance to the major topic, an experience that was both challenging and enjoyable.

In studying the roles of those building the highway and those who would benefit from it, we learned to distinguish the producers of goods from the producers of services. We compared modern road-building techniques with the less efficient methods of the past and gained an appreciation for modern technology. We compared the cost of building the highway ("$2,800,000—that's a lotta much money!") with the benefits we hoped to derive from it. We examined the reasons why it would not be a four-lane highway, relating this to the scarcity of land, labor and capital. The fact that scarcity of productive resources forces us to seek for more efficient allocation was discussed (although not, of course, in such sophisticated terms).

The consumer's function in our economy was examined in relation to the highway. We spend our money for goods that must be brought to us over the highway, thus creating a demand for a better road and for the services of those who are building and maintaining it. The pupils evidenced a growing respect for all the workers, from the flag men to the operating engineers, and for the fact that through specializing and dividing the labor the highway will be built faster and more efficiently. The notion that the workers produce so that their money incomes can provide their families with more goods and services was readily understood. The concept of specialization was also applied to other situations, for the pupils learned that their parents, teachers and others in the community specialize in different things.

All parts of the elementary curriculum were related to the highway project. Conservation became a matter of concern, for the children did not want the new road to destroy the natural beauty of the area. The language arts were applied as we read stories about transportation, defined economic terms and wrote compositions. Word games were devised which engendered enthusiastic participation. Relevant sections of newspapers and magazines were cut out and marked and records were kept of economic questions and their answers. Records of progress on the highway were kept and illustrated by flannel board displays, original poems and stories. Our dramatization, songs and talks were recorded on tape. When we wrote a play about the highway the script was continually scrutinized and improved and tapes of the performance were critically analyzed. Speech defects were corrected and oral presentations were improved. None of this detracted from a relaxed but purposeful classroom atmosphere. Committees worked at their assigned chores or independently chosen tasks with less and less supervision.

Arithmetic lessons included such things as computations of the amount of taxes accounted for per dollar of expenditure, measurements used in building the highway, and the costs of the project. These first graders were thrilled by their ability to add $1,400,000 (the State's contribution) and $1,400,000 (the Federal government's contribution) to arrive at the total cost. They excitedly explained to anyone who would listen how these two huge figures could be totalled. Our science lessons dealt with the problem of replanting the trees, grass and flowers along the highway, and the economic advantages to be gained by preserving the beauty of our natural environment were stressed.

The problem-solving approach of the social studies was used, emphasizing the fact that the method we were employing to study the highway could be used

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to deal with other aspects of our lives. The pupils were introduced to maps and were taught how to locate the highway. When we studied the history of our county and of early road-building, the children remarked that in the past it took more men to produce *less* because of the lack of modern machines. They learned to apply such terms as producer, consumer, goods, services, specialization and division of labor to other times, even though they took different forms.

During the music sessions the pupils wrote new lyrics to a folk tune to create "On Highway 62," which quickly became a local hit. The piano, recordings of sounds emanating from the construction site, and our rhythm band were used in assorted combinations to provide a background for pantomimes and independent role-playing situations. Slow beats, for example, suggested the noises and movements of the large and cumbersome machines. In a pantomime called "I Am a Highway Machine" the children used music and sang the words they had composed to enliven and color their movements. Art work also focused on the highway project, and we developed an efficient division of labor in preparing the paints, cleaning up the room, and the like. The factors of production were identified in a class mural depicting the construction of the road. Just as the road-builders had to consider alternatives in the use of resources, so too did we take into account how we could economize on our paints and other materials in the production of the mural. Some children specialized in drawing and painting the machines, others in doing the natural background, and so on.

Achievements

It is difficult to single out one activity as *the* final and culminating experience for our study of economics. A field trip and the preparation of an instructional television tape, however, were certainly among the most exciting events that occupied us toward the end of the semester. In preparation for the field trip we discussed the questions that we wanted to ask the highway workers. The questions were originated by the children. The following is a small sample:

- What did it cost to buy the machines?
- How many different kinds of jobs are there?
- What will be the cost of the new land you'll need?
- How many days have you lost because of bad weather?

While these may seem to be simple and unsophisticated to those who have never worked with first graders, they do show an interest in costs, labor specialization and other economic aspects of the highway project. The making of the instructional video tape of our field trip and classroom activities were, of course, a source of great satisfaction to us all.

Evaluation was continuous throughout the semester, although it was intensified during the last weeks. The most significant outcome was that the children seemed to be able to apply certain concepts. For example, they seemed to understand that division of labor in the classroom was at least partially responsible for our success. They could see the relationship between the availability of resources and the satisfaction of our needs and wants. They had experienced extensive interchange of original thoughts, they acquired confidence in expressing themselves, and began to make group decisions with greater ease. Along with the atmosphere of cooperation and group responsibility, each child has been able to express to some extent his own individuality through creative endeavors in color, sound and movement.

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The children acquired the habit of examining alternatives and applied this in their homes and in stores. They learned to think critically and to employ the problem-solving approach to the simple tasks of the home and the classroom. There were significant behavioral changes during the final month, partly because of cooperative planning and execution and partly because of increased interest in classroom activities. There was a marked increase in cooperation and sharing. Each child began to learn that in addition to his own accomplishments he had a responsibility to others and that we are all indeed interdependent.

The overlapping of all phases of the curriculum, with economics as the unifying core, created a new learning environment. The flexibility of the program allowed for various rates of learning. For example, one youngster who had had difficulty all year in reading showed great improvement and began to look upon it as fun when reading into a tape recorder and when helping to prepare charts. Most importantly, the children learned to respect themselves and others through this discovery program in economic education.

Economics and the Environment

A Third-Grade Project

Joan Mary Macey
MacArthur School, Binghamton, New York

My Rationale

"Ideas won't keep. Something must be done about them"
Alfred North Whitehead

And in teaching economics in the elementary school I have done something about my ideas. In my self-contained third-grade classroom I made a deliberate attempt to present some concepts of economics so that the children may better understand the world in which they live, both inside and outside of the school. Marshaling my forces—my background and knowledge of economics and my teaching experience with eight-year-olds—and my desire to relate economics to a major concern of our decade, I decided to explore environmental abuse and pollution. In order to prevent the subject of our affluent society from being confined or limited to a single teach-in day or a "National-Pickle-Week" type of observance, the economic and ecological aspects of the matter were to be pursued during the entire semester.

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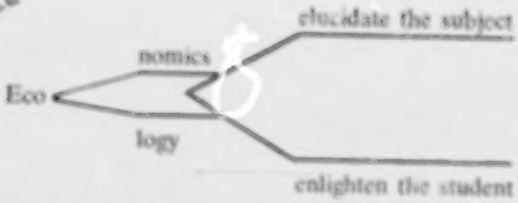
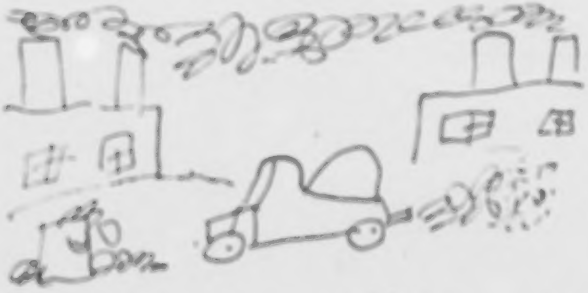


Merely deploring a ravaged, despoiled environment and forecasting an uninhabitable world are superficial, glib approaches to a complex subject. But elementary school students can be shown some of the complexities of the subject and helped toward a more nearly complete understanding of the problems they will eventually have to face. They are already concerned about our environment:

Fri., April 3, 1970 PRESS, Binghamton, N. Y. 5-C

Children's Letters to God



Dear God, Why are they doing this to your beautiful creation. Please make them stop.

4-3 Paul

And we cannot start too soon! Secretary of the Interior Walter J. Hickel has stated that improving the U.S. environment "will take a generation of men

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and women who will study both ecology and economics, biology and philosophy, who are broad enough in their exposure to have a balanced judgment."[1]

Careful planning and thoughtful analysis were required to accomplish my goals, although I did not rule out taking advantage of the spontaneous or unexpected opportunities that presented themselves during the school year as vehicles for the presentation of economic concepts. These opportunities—a story in the basal reader, a feature in the children's classroom newspaper, *Scholastic News Trails*,[2] a local or national news story with economic implications—were used to "hang it in there," as the current expression goes, not just let it "hang."

Can pupils "discover" anything today? Is our society conducive to such attempts to find out for themselves? With television hitting them at home and lock-step curricula forcing them to conform, subtlety seems to go unnoticed, is unabsorbed, and seemingly unresponded to. In that case, a *conscious effort* must be made to make children aware of our economic system. This year I have made this kind of effort.

Development*

In introducing my pupils to economics I used a straight lecture-discussion strategy, asking them for the occupations of their parents. Among these were doctors, dentists, nurses and lawyers, excellent examples to illustrate the growing trend toward service occupations and specialization. Also, I pointed to myself and my colleagues in teaching as engaging in services. I showed the pupils how much money is needed to pay the salaries of all the teachers in the school, and the figure of $540,000 made a deep impression. Few had realized how much it costs to provide them with their education. I showed pictures of people "on the job" and asked the children to identify whether goods or services or both were depicted. These same pictures were then used for a bulletin-board display. (The annual reports of corporations are an excellent source for pictures of this type.) For homework, the children were to bring in pictures from newspapers or magazines depicting producers or specialists. (I had several magazines on hand for the benefit of those children who had none at home.) Another bulletin-board display was arranged with the results of this assignment and under each picture I typed a sentence telling who had brought in the picture and what occupation was shown.

The next lesson included the showing of a film entitled "The Seaport." Children are often interested in this topic, and the film made it possible to increase their economics vocabulary. It showed specialists at work in a port and included such terms as exports, imports and national markets. The third lesson dealt with farm mechanization to clinch the point about the role of machines in our economy. A bulletin-board display illustrated the topic. It contained a copy of Millet's "The Gleaners" to depict primitive farming methods and a picture of modern farm machinery at work to show the new.

It was in the fourth lesson that the topic of the environment was introduced.

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[1] *Time*, March 16, 1970, 62.

[2] *Scholastic News Trails*, a third-grade newspaper, is published weekly by Scholastic Magazines, 902 Sylvan Avenue, Englewood Cliffs, N.J. 07632.

*Note: The original report submitted by Miss Macey was 59 pages in length and contained 21 lessons. Unfortunately, limitations of space permit us to include only a sampling of these lessons. *The Editor.*

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The objective here was to have the pupils see the beauty in the world around us and to learn that this is being threatened. Using such excellent sources as *The Conservationist*, published bimonthly by the New York State Conservation Department, I arranged another bulletin-board display which was used as the focal point for the discussion. It was hoped that the juxtaposition of nature, pure and simple, with the complexities of industry would form an impression on the pupils' minds.

Ensuing lessons stressed the role of consumers and producers and the circular flow of income. One of the bulletin-board displays entitled "We Are a Nation of Consumers" attracted the attention of visitors as well as the children, for in addition to pictures it showed such artifacts as a soft-drink can, a bread wrapper, a plastic pill bottle, and even a pair of old shoes containing a conspicuous hole.

One of the most interesting lessons involved a "Cooperation-Competition Simulation" developed by a group of teachers participating in the NDEA Civics Institute for Elementary School Teachers at Tufts University in Medford, Massachusetts, during the summer of 1967. The class was divided into residents of two towns, called "Greentown" and "Bluetown." Each resident was given a role, such as: "You are Mr. Allen, the owner-operator of Allen's Shady Rest Motel. You have 40 beds, 8 cots, and dining facilities for 55 people." Each "merchant" then received a copy of the following letter addressed to the Chamber of Commerce of his town:

> Dear Sir:
>
> The Furniture Dealers of America are planning to hold their annual convention the first week in July. We have tabulated our needs and they are as follows:
>
> 1. 400 beds.
> 2. Dining facilities for 450 people.
> 3. Recreational activities to insure a successful convention.
>
> Please let us know if your city can accommodate our group.
>
> Sincerely yours,
>
> HOWARD JONES, *Secretary*
> Furniture Dealers of America

It was necessary to explain to the children the desirability of having a convention in town—how it would generate business for the community. The two groups met to see what facilities each town could offer. The game was rigged so that neither town had the necessary beds or dining facilities. Each group played around with various solutions—split a double bed in half, buy more beds, bring in some trailers. Finally they hit upon the idea of exchanging facilities with each other. This was the idea behind the simulation. Alone, neither town could accommodate the convention, but together they could. (Other roles included such people as theater operators, and owners of golf courses, dress shops, bowling alleys, parking lots, and the like. Hopefully, the children saw that these were assets to the town.) The idea of cooperation was pursued further when we discussed the possibility of having joint sewage treatment facilities and fire departments. On the next day the following questions were distributed:

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1. Why did both towns want the convention?
2. What was the main problem faced by the merchants in each town in trying to handle the convention?
3. How did each town solve this problem?

The results indicated that the children saw the desirability of cooperating in order to have the convention come to town.

More bulletin-board displays were arranged on pollution, showing the various causes and the ugly results. A display entitled "Our Economy Produces" illustrated both the "goods" and the "bads." It demonstrated that trucks carry food to our tables but spew exhaust fumes into the air, that cities are exciting places to live in and visit but result in congestion, and that airplanes expedite the movement of goods and people but create undesirable noise and fumes. As a case study, we examined the implications of the discovery of oil on Alaska's northern shore, and how the proposed 800-mile pipeline might affect the ecology. A number of poems, stories, articles and recordings were used to have the children realize that the resources of our planet are limited. When we studied the costs that firms have in producing goods and services, the cost of pollution control was included along with wages, rent, interest, taxes, insurance, advertising and the like. Another bulletin-board display with pictures illustrating the various costs proved to be helpful.

One lesson was devoted to"Re-use, Recycling and Reclamation" as partial solutions to the problem of pollution. I displayed a picture of an abandoned car and it came as a surprise to the children that wornout autos are a disposal problem. (More than 50,000 were abandoned last year in New York City alone.) Another picture showed boy scouts collecting aluminum cans, each of which is worth ½¢ in the scrap metal market. I pointed out that it costs New York State 30¢ to pick up each empty bottle discarded along its roads, and that deposit bottles which are returned to the store are used an average of 19 times. We saw how the public's desire for more attractive and intricate packaging also aggravates the disposal problem.

We learned that officials of an airport in Tennessee have asked for old glass bottles, which will be crushed and mixed with the asphalt used in resurfacing the runway. This idea could also be applied in our own classroom. Using scraps of material from clothes, we made mosaics by cutting the scraps into small squares and pasting them on oak tag paper. Collages were made by pasting scraps of irregularly shaped material on oak tag. Even the left-over leftovers were used to make a border for the bulletin board! Spring flowers were made with egg cartons and tempera paint. The lids of the cartons are also useful as small frames for art work.

To show how money spent in one sector tends to spread and have a kind of multiplier effect, I brought up the transfer of the baseball franchise from Seattle to Milwaukee. I had gotten this idea from a radio broadcast in which the mayor of Milwaukee was being interviewed by a sports announcer. The mayor had mentioned the multiplier effect that the new major league club would have on his city's economy. By the use of leading questions I got the children to see some of the economic effects the team would have on Milwaukee. Some of the things we listed were:

- the sale of food and souvenirs at the ball park
- parking for automobiles

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- greater use of hotels and restaurants
- housing for the baseball players
- the sale of more sports equipment and supplies
- upkeep of the ball park
- the sale of tickets
- the need for more sportscasters
- public transportation to get people to the games

The children illustrated each of these for another bulletin-board display. One little girl observed that having a baseball team is "sort of like a convention coming to town and staying."

Culmination

As a culmination activity, the children were put in a role-playing situation where they could apply some of the vocabulary and principles that had been covered in the preceding weeks. Five were chosen to be the managers or "entrepreneurs" of a firm. The rest were to be citizens of the community in which the firm was located. They were also employees of this firm, which was polluting the water and air in the course of its operations.* The townspeople were going to confront the entrepreneurs with these facts.

The five entrepreneurs were sent into the hall to prepare an opening statement and marshal their arguments. I remained in the room with the town residents and we did likewise. Then came the confrontation—and it was just that! The townspeople were hostile, belligerent, threatening and uncompromising. The entrepreneurs were agreeable and willing to work on solutions to the problem. Their opening statement ended with the words "Help us," but it went unheeded as one accusation after another was flung at the businessmen. They even overlooked the fact that the firm was the source of their jobs. They threatened to quit their jobs, close down the factory, sell their homes and leave town.

When asked whom they would sell their homes to, they said "the government." Also they said they would go on welfare. (This is interesting, because "welfare" had never been mentioned in the classroom.) Some of the statements made by the entrepreneurs were as follows:

"We're working on the problem, but remember that you yourself do some of the polluting."

"If you want the stuff you have, like cars, you're going to have to live with it."

"You should come and help us clean up."

"If you shut down the factory, you won't have the things you need."

I think that these remarks indicate an understanding of many of the concepts and complexities I tried to bring to the attention of my pupils during the course of the semester. "Debriefing" was difficult, as the children were quite emotionally involved and could not stop the accusations. (Also, the leading entrepreneur had to leave to take a piano lesson.)

The next day I handed out a ditto sheet with the following questions:

1. The company was accused of polluting the water and air in our fair

*A good source for teacher background on the subject of pollution appeared on pages 26-29 of the N.E.A. Journal *Today's Education*, January 1970.

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town. They admitted this. What evidence did you see and hear that they were willing to correct this situation?

2. *Why* would they want to correct this situation?

The results were satisfactory. The study of economics gave a focus to many of my bulletin boards, teaching strategies, science, art, language arts and social studies lessons. It helped to provide a continuity to the activities. It is comforting to be able to see where we have started, where we are going, where we have arrived. It all seemed worthwhile.

Economics Through Creative Expression

A Second- and Third-Grade Unit

Starr M. Shelley
The Hickory School, New Orleans, Louisiana

Background

As teacher of a combined second- and third-grade class during the 1969-70 school year my biggest problem was lack of time. And because of an accelerated curriculum there appeared to be no solution for it. Certainly, there seemed to be little possibility of weaving another subject into an already tightly knit schedule. Yet, because I had recently attended a summer workshop in economics and had become convinced of the need to introduce economic concepts at the primary level, I attempted to develop a program which would become, after its launching, almost entirely extracurricular.

After a number of false starts, none of which led to anything the children might have wanted to do on their own time, I decided to take advantage of two prominent activities in our curriculum which are both enjoyable to the children —creative expression through plays, and creative writing. Our plays could incorporate economic concepts, and creative writing could be utilized in a novel way. Ours is a busy school (a private institution) and we should keep parents abreast of all activities. There had never been time to publish a weekly newsletter, although we had always felt the need for one. How much more meaningful it would be if the children produced it themselves!

Development

Economics instruction had been almost totally lacking in our curriculum, so there were few things we could build upon in developing an economics unit for second- and third-grade pupils. I decided, then, to arouse interest by relating economics to some known historical event, and chose the voyages of Columbus

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as a starter. The facts of the voyages are but one part of the story—*why* they were made and what results they had should also be stressed. Children are fascinated by the famous explorers and the hazards they encountered, and the teacher can capitalize on their interest to introduce such basic economic topics as trade and the benefits to be derived therefrom.

Strange as it may seem, it was during a discussion about the earth and its motions that the opportunity first came. The movements of the earth in relation to the sun were discussed and this led to a study of cardinal directions. In turn, this led to the topic of the first voyage of Columbus and why he believed that by sailing west he could reach the east. The pupils were given an assignment to learn all that they could about Columbus and in the ensuing sessions they were much better prepared. Eventually, when discussing the reasons for the voyages, the word "trade" came up. I asked: "But what was so *important* about trade?" In seeking definitions for trade, the children came upon such words as buying, selling and money. We became involved in considerations of specialization, interdependence, division of labor, and—at least by implication—comparative advantage. The question of why people would risk large sums of money in supporting new ventures emanated naturally from a discussion of Queen Isabella's financial support of Columbus. From this came the realization that in some way trade is beneficial to each country involved. Filmstrips, such as the "People and Goods Travel" series, were used to dramatize some of these concepts. We also obtained travel brochures from several countries and these provided a wealth of information. Each pupil was asked to prepare an oral presentation on a country, pretending to be that nation's leader.

For Columbus Day we decided to produce a play that we had discovered in a weekly magazine. After several intensive readings, however, it was clear that our own studies had resulted in much more information than was contained in the script. I suggested to the pupils that they do it without a script. In pretending to be the historical characters involved, the children demonstrated what they had learned about economics. For example, when "Columbus" was trying to convince Isabella to support his voyage he pointed out that a new market for Spain's goods might develop and that, in turn, Spain would acquire new products from other parts of the world. He even went so far as to argue that the resultant increase in income would create *more* jobs and income. Since this was entirely "ad-libbed" I was well satisfied that my pupils were on the right economic track. Throughout the semester we found many other situations which were adaptable to similar role-playing. An added advantage was that misconceptions could be spotted and clarified immediately, and usually the characters in the dramatization did this for one another.

While the dramatization of historical situations was a valuable activity, I felt that the children should also become involved in some of the real-life problems that affect them. They would naturally be most interested in those which are closest to them, so some class time was given over to a problem facing our school. The construction of a new wing was being considered and it was necessary to weigh our desire for this against the costs involved. Space was a problem, and the children noted that to have a new wing we would have to relinquish the school driveway. One of the *real costs* of the wing, then, would be the loss of the driveway which was deemed to be essential for the safe arrival and departure of the children. Thus, we decided not to "trade off" our driveway for a new wing. We then perused newspaper advertisements and consulted a real-

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tor, only to find that suitable structures were either unavailable or too expensive. The concept of unlimited wants versus scarce resources took on real meaning and it became much easier to apply that concept to other situations, such as shortages of nurses and teachers, the public's demand for more goods and (at the same time) pollution control, and the desire for more cars when highways are already overcrowded.

We devised a simple game that could be played in a variety of situations, whether we were working with our texts in the classroom or going on a field trip. Whenever the children encountered an illustration or saw something in person, they were to name the productive resources in evidence. Upon seeing a factory, for instance, a child would say: "A factory—capital." Upon seeing a man shearing sheep, one might identify the man as being a "human resource" while another would note the natural resources in the same scene. Differences of opinion would be discussed and resolved amicably.

A field trip to the state capitol strengthened their understanding of many concepts. A "For Sale" sign on a farm led to conjectures regarding the possible reasons for the farmer's decision to sell. Was his opportunity cost greater elsewhere? Was the old hand-plow we saw evidence of a lack of modern technology? What natural resources were available? We discussed the farmer's products and how they got to us as consumers, identifying the goods and services involved all along the way—even including the tires on the trucks which carry the produce.

Through bread-making and paper-making projects the children acquired practical experience in division of labor. As the term progressed, they acquired the habit of seeking information before "sounding off" and of questioning one another. Our studies of other countries had included a consideration of different economic systems, and the students' vocabulary included such terms as communism, capitalism, market economy, supply and demand.

We also studied a variety of business situations. For example, upon seeing an advertisement in which a button shop offered its entire stock at one-third the original price, we checked into the reasons and concluded that people were simply not demanding buttons. After reading that frost had destroyed an orange crop we found that the price of oranges would rise. The children began to understand the workings of the law of supply and demand. When we found some stock in an old automobile company that had long since gone out of business, we learned that a great demand for motor vehicles does not guarantee success for all producers. We noted the variations in supply and demand for such seasonal items as Easter candy. In studying the parents' occupations, we differentiated between the producers of goods and of services, examined the factors accounting for their success, and noted whether the demand for their goods or services varied. (One child whose father is a minister stated that her father's "business" is always better at Christmas and Easter.)

Thanks to these experiences the children were ready to launch our major enterprise—the publication of a newspaper. Through constant use of the daily newspaper they had become familiar with its format. It was decided, after an examination of the various forms of business organization, that a corporation should be established to publish *The Hickory School News*. Meetings were held, officers were elected, and a financial record book was set up. The children were warned that not all business ventures succeed, that the success of this one would depend on their individual efforts, and that the activity would be almost

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entirely extracurricular. They called another meeting, assigned jobs, decided on a format, and set the price at one cent per copy. Almost immediately we were swamped with articles.

The newspaper proved to be extremely popular with parents and children alike. Circulation doubled in no time and there was never a shortage of contributors. We even received articles written by first-graders and by students from other schools. Supplies were purchased from the school office and all went well until there was a price increase. In response to this, the price of *The Hickory School News* was raised from one cent to three cents per copy by vote of the Board of Directors. After several weeks of floating on a cloud of success, however, their monopoly position was challenged. A competitor emerged in the form of a very fine publication called *Primer Prattle*. Their advertising alone was formidable—posters in every nook and cranny blatantly shouted: "Get the best for less!" Circulation of *The Hickory School News* faltered, an emergency meeting of the Board was held, and the price once again dropped to a penny. Furthermore, improvements were made in the *News* in order to meet the competition.

Outcomes

The newspaper project was a good "capstone" lesson in the workings of the competitive market system. All through the year there had been almost limitless opportunities to relate economics to the various subjects in the curriculum, and the knowledge acquired was actually put to use. Just as important, the children began to change their attitudes. Formerly, the older children had looked upon the first graders as "babies," but through the newspaper project a communication developed that was mutually beneficial, for the first graders had been enthusiastic contributors. Meetings, originally noisy and unproductive, somehow developed into orderly and reasonably mature gatherings. The students seemed to acquire a sense of responsibility, for they not only voted to pay all the costs of producing the paper, but decided to leave the profits in the "corporate account" to serve as next year's "capital investment." On field trips to a bottling plant and a small weekly newspaper office they viewed production methods with understanding. When two of their number, the corporation president and the author of the advice column, were invited to appear on a local television show, they bulged with a sense of accomplishment. Thanks to economic education, it was a splendid year.

APPENDIX TO CHAPTER 1

Good Ideas in Brief: Primary Level

MRS. KAR LYNN ROBERTS of the *Forrest Park Elementary School* in *Pine Bluff, Arkansas,* has found that a "Mother's Day Tea" is a good vehicle for teaching economics to first graders. First, the children had to raise money to finance the tea. This was done by setting up a "popcorn factory." The various factors of production were used in the production of popcorn, and division of labor was employed in an assembly-line technique. The popcorn was sold to

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pupils in the school. All costs were covered and the profit was used to pay for the items needed for the "Mother's Day Tea."

MRS. LAURA B. TONEY of the *Geneva Kent Elementary School* in *Huntington, West Virginia,* used a number of activities to teach the value of division of labor to her first-grade class. One of the most original, however, was the preparation of a set of transparencies of Snow White and the Seven Dwarfs.

SUPER FLOUR
The "Sleepy" Truck Driver
The flour was loaded on the truck
and started on its way,
But soon the driver fell asleep
So the load was late that day.

One of a set of transparencies used by Mrs. Laura B. Toney to illustrate specialization and division of labor for her first graders at the Geneva Kent Elementary School in Huntington, West Virginia.

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Each dwarf was depicted in a different role. "Doc" was the farmer; "Bashful" was the miller who ground the wheat; "Sleepy" the truck driver who transported the flour; "Grumpy" the baker who produced the finished product; and "Happy" the retailer who sold it to the consumer. The problem of inefficiency was illustrated by "Dopey," whose inability to put items in their proper places created a bottleneck in the process. Each transparency also contained a short poem describing the particular dwarf's function.

MRS. IRENE D. SCHULZ of the *Jean Gordon Elementary School* in *New Orleans, Louisiana,* seized upon her third graders' interest in the Mardi Gras festival to teach economic concepts. The children had been introduced to such terms as goods, services, wants, needs, producers, consumers and division of labor through a wide variety of activities. Then, when constructing a Mardi Gras float, the children were asked to keep a record of the resources they utilized. In a role-playing situation, some pupils acted as businessmen, while others pretended to be reporters asking them how Mardi Gras affected their businesses. These interviews were taped, played back and discussed in class. During a trip to a firm that makes Mardi Gras floats, the children saw how division of labor is utilized and how specialization increases productive efficiency. Through the use of films, modern Mardi Gras parades were compared with those of the past so that the children could see how technology had changed these celebrations. Finally, a Mardi Gras parade in which the entire school would participate was planned and executed with great success.

MRS. SHIRLEY C. JENNINGS of the *Thomas Jefferson Elementary School* in *New Britain, Connecticut,* has used role-playing in a particularly effective way to teach economic principles relating to family budgeting and the government's role in the economy. Her third graders cut out pictures of the things they want from magazines and catalogues. Each child's cut-outs were then placed in plastic bags and displayed on the bulletin board. After several lessons introducing them to concepts of money and income, the pupils placed realistic prices on the cutouts representing their wants, and selected the items most dear to them. Invariably they chose expensive goods. Then each child selected some other items which would equal the price of the first choice, thus enabling him to see the *real* or *alternative cost* of his initial selection.

Groups were formed which represented families of different sizes and with different incomes. Using the cut-outs to represent wants and play money to represent income, each "family" attempted to construct a budget. This forced them to establish priorities and strongly reinforced what they had learned about real costs. "Low-income families" had trouble making ends meet, while "upper-income families" often had money left over after their needs had been met. The former began to experience frustration and a sense of injustice. The families were then re-formed so that all would share in similar experiences. A "bank" was set up in the classroom to enable the families to deposit their savings in checking or savings accounts. Intensive discussions took place on the problems of the poorer families, resulting in numerous suggestions whereby these families might increase their real incomes.

A bus tour of the city was used to show the class that there are also social

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needs and wants (such as schools, fire protection and police services) and that the concept of real cost also applies to the city's budget-making problems. A new character then entered the scene in the classroom family—the tax collector. Now the family budget-makers had to take taxation into account, leading to some heated discussions on the fairness of the proportion taken from each family's income and the benefits derived from public services. Throughout this 22-lesson unit in economics, the role-playing sessions became increasingly complex and sophisticated. The results were evident in culminating field trips to a bank and city hall, for the children posed highly intelligent questions on the functions of banks and the city government in meeting our needs and wants. As part of the evaluation process, questionnaires were sent to the parents to determine whether or not the things learned in the classroom had any "carryover" at home. It included such questions as: "Has your child made any remarks about the cost of things or about making choices when we spend money?" Positive responses to most of these questions indicated that these third graders *were* applying their new knowledge of economic concepts to their everyday lives.

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CHAPTER TWO

Intermediate Level: Grades 4-6

Our Inflated Economy

A Sixth-Grade Simulation Game

Francis V. Bono
Tavernerville School, Parkersburg, West Virginia

Background and Objectives

My class of 34 sixth graders was made up of children from lower socioeconomic areas, and many were from broken homes. Although the economic problem of choice-making is a particularly serious one for children of this background, they get little training or experience in handling money or coping with the kinds of decisions that they will have to make as adults. They need to know how problems are solved in a real-life situation and thus I developed a simulation game designed to help them acquire the understandings and skills that will have practical value after they leave school.

The specific aims were to give the children an understanding of the following:

1. What inflation is.
2. What causes inflation.
3. What can be done to combat inflation.
4. How the scientific method is used in approaching problems like inflation.
5. How to interpret graphs and diagrams.
6. How to present data through developing graphs.

Development and Use of the Game

At the beginning of the game each child is assigned randomly to a particular occupation. Some can be categorized as professionals (doctor, lawyer, professor, engineer, school principal), some as skilled workers (machinist, plumber, electrician, bookkeeper, carpenter, printer and the like), and others as unskilled factory workers. Their incomes vary accordingly, the lowest (in terms of take-home pay) being $350 per month, the highest $1000 per month.

Next, the room is divided into five areas—the food area, the shelter area, the clothing area, the transportation area, and the miscellaneous area. A certain minimum percentage of each child's pay must be spent in each of these areas. These percentages can be changed as the game progresses, for remember that the topic is inflation. At least 14 percent must be spent for food, 19 percent for shelter, five percent for clothing, and so on. The minimum for transportation varies, depending upon whether or not the child has his own

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"car." Note that a child can spend more than the required minimum if he so chooses. (This can give a pupil a feeling for the opportunity cost principle, for he soon sees that if he spends too much in one area he sacrifices something from one or more of the other areas.) The miscellaneous area contains many "articles" for sale, including such luxury items as stereo sets as well as the necessities of life, and prices are established for each. These prices, of course, will rise to show the effects of inflation. No restrictions are placed upon spending, so the child may elect to spend all of his income or he may save some.

Some children are home-owners, while others rent their houses or apartments. Various rental and mortgage payment figures are provided, mortgage payments ranging from a low of $45 to a high of $305 per month. The child may choose whatever rental or mortgage figure he likes, as long as he spends at least the minimum percentage of his income mandated for housing. A child may change his residence as the game progresses, as in the case where he finds he is spending too much for housing, but each move costs him $50 for moving fees.

Some of the pupils are categorized as car-owners, while others must find other means of transportation. The car-owner is assumed to spend 15 percent of his monthly income for running his car. The non-owner, however, may spend as little as four percent for transportation, for he can use public facilities or join a car pool. It is up to each child to decide whether or not to become a car-owner.

A very important part of the game is the *fate cards*. Twenty-two of these cards were prepared, each containing a situation which would involve an unexpected receipt or expenditure of money. A sample of the situations follows:

- You receive $75 from a friend who owes you money.
- You must pay $50 in income taxes.
- You break your glasses and must pay $25 for a new pair.
- You must take an emergency trip that costs $70.

The situations listed above would apply to any pupil. These cards are drawn at least once by every member of the class, and the student must react accordingly in planning his expenditures. In addition to the generalized fate cards such as those above, others were prepared that would apply only to certain individuals. Auto-owners might get a card indicating that they have to pay $100 for a repair bill or $15 for a traffic violation. Non-owners might be told to pay $5.00 for a taxi during an emergency. Home-owners will get cards telling them to pay $55 to have the furnace repaired, while those renting apartments might find that their leases will not be renewed and they will have to seek new lodgings and pay the $50 fee for moving. Workers have to pay union dues, while professionals must redecorate their offices.

The use of fate cards practically guarantees that some children will find themselves short of cash. If this should occur, they may have to apply for a loan at the bank, paying an appropriate rate of interest. Goods can be purchased on credit, but the instalment payments will include interest. Each student keeps a record of his payments and purchases. Prices increase gradually during the game. *News bulletins* are circulated periodically to give the children information on conditions that might affect prices. A sample of these bulletins follows:

- The Federal government is increasing the amount of goods sent abroad

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by several millions of dollars worth because of the war. Shortages of these goods are expected to develop at home.

- Economists report that people are demanding more goods and services and that buying on credit is on the increase.
- Farmers are reportedly burning their wheat fields to bring about shortages of wheat. This is expected to affect the prices of all products made from wheat.
- Steel workers are on strike. The price of steel is expected to rise as a result.
- Truckdrivers are on strike. Shipping costs are expected to rise.
- There has been a general slowdown in the production of goods and services for domestic consumption because of the war.

The children must be kept fully occupied as the game is being played. Each child gets an *activities sheet* listing various things that must be done if the child is to collect his monthly income. The activities are varied so that the pupils will not become bored and so that they will learn relevant facts and concepts. For example, one activity involves the making of posters to advertise products. Readings on inflation are included. They are instructed to locate articles in newspapers and magazines to make a scrapbook on inflation and to form the basis for a written report on the subject. Some of the activities call for creativity. The pupil may write letters to imaginary friends in other countries, explaining our problem with inflation. They may make up songs, poems or jingles that relate to class work. Committees may be formed to draw up a list of recommendations to the President on ways of fighting inflation. One important activity is the making of graphs showing the individual's financial status. Students may be working on different projects at the same time and the teacher can provide help and guidance on an individual basis. Films, guest speakers and group discussions can be introduced whenever they will help to clarify a point, provide needed information or illustrate a concept. In short, the game is not rigidly confined to preplanned rules and procedures, but can be varied in terms of the interests, needs and abilities of the class.

Note that the game deals with subjects other than economics or the social studies. Mathematics is needed in computing percentages, tabulating expenditures, planning budgets and constructing graphs. Graphs should be made by each child to show his monthly expenditures for each of the categories. Month-by-month comparisons can be made so that the child sees how well he is handling his personal finances. (Incidentally, a "month" for purposes of the game can be one, two or three days. The game should run for at least 3½ weeks.) The teacher must not forget to keep raising the prices of just about everything that the children can buy.

Organization and preparation are extremely important. Students can be assigned to help keep records, serve as bankers and do many other necessary tasks. Orderly procedures must be worked out for distributing activity sheets, drawing the fate cards, assigning "incomes" and "occupations" and so on. The rules and procedures must be carefully explained and the game should not start until everyone clearly understands them. From time to time, the teacher must provide instruction on an all-class basis in such things as computing percentages and making graphs. Discussions should be held periodically on such questions as the effects that inflation is having, what the apparent causes are, and what

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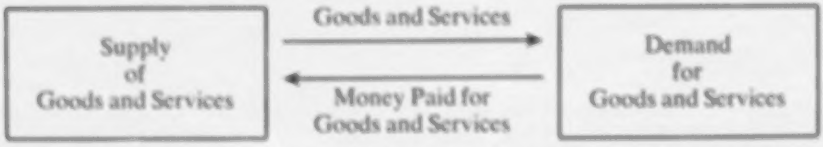
might be done about it. Note that incomes may rise during the game and the child may not realize at first that while his money income has increased his *real income* has not.

Discussions should be held on who suffers most from inflation, so the pupils learn that some groups are relatively untouched by it while others (such as those living on pensions) are seriously hurt. At this stage in the game it should become evident that some of the children are suffering more than others. The class can also be taught to interpret and use diagrams to clarify economic concepts. In the diagram below, for example, they get a picture of the relationship between demand and supply and see how money flows from consumers to suppliers. To illustrate inflation, one can increase the size of the demand box so that an obvious imbalance occurs. More complex diagrams can be introduced after they have mastered this simple one.



The final phase of the game, of course, involves a consideration of what can be done to combat inflation. A good exercise related to this is to have the pupils interview people in the community. They can use a brief questionnaire containing the following questions:

1. Do you think that an increase in taxes will help control inflation?
( ) Yes. ( ) No. ( ) I don't know.

2. Do you think that direct government control over prices and wages would be a good way to fight inflation?
( ) Yes. ( ) No. ( ) I don't know.

3. The Vietnam conflict is—
( ) strongly responsible for inflation.
( ) somewhat responsible for inflation.
( ) mildly responsible for inflation.
( ) not at all responsible for inflation.
( ) I don't know.

The children can help to formulate the questions. They should try to get pertinent information about each person they interview to be sure that the population sampled is representative of the total population in the community. The results of the poll can then be tabulated, computed in percentage terms, and depicted on a graph. (Before letting the children interview people, set up a role-playing situation in which they interview the teacher. This will give them practice and enable them to detect possible flaws in their questionnaire or their interviewing techniques.)

The results of the poll can be the subject of a final discussion in which all possible "cures" for inflation are considered. In addition to such things as increased taxation, reductions in government spending and price-wage controls, it is important to talk about the steps that can be taken by the individual or the family. Thus, a practical result of the unit can be an understanding of what the average person can do right now to protect his income from the ravages of rapidly rising prices.

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Evaluation

To a considerable degree, evaluation can be informal. The game provides ample opportunity to observe student progress as they work individually, in small groups or as a class. Remember that once the routines have been firmly established and the pupils know what is expected of them, the game offers many chances for the teacher to give individual help and guidance and thus to see how well each student is mastering the concepts. One can note how well children cope with the unexpected financial situations presented by the fate cards and whether they improve in handling their expenditures month-by-month.

For a formal evaluation, objective tests can be constructed. Some of the items I have used are as follows:

- Mr. Smith pays 10 percent of his monthly earnings for food, 20 percent for rent, 10 percent for clothing, 20 percent for transportation, and 20 percent for miscellaneous items. The rest is deposited in a bank. Make a graph showing how Mr. Smith spends his money.
- Mr. Smith takes home $500 a month. Using the percentages given in the question above, figure out how much in dollars he spends on food, clothing and shelter.
- Mr. Smith has $300. He spends $38. What percentage of the $300 did he spend?
- Explain in one paragraph how you could go about finding how people feel toward the possibility that inflation will get much more serious next year.
- Write a brief definition of inflation.
- What are some of the things that we can do to combat inflation?

Other questions called for an interpretation of the kinds of diagrams that had been used and explanations for such terms as supply, demand, goods and services. The results were encouraging and I believe that children can learn about such important problems as inflation at an early age. In the process of studying this issue, they can acquire many basic skills and understandings that will apply to the real-life problems that confront them.

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Ricky and Billy's Dollar Vote

Economics in Sixth Grade

Mrs. O. L. Burney
Central Elementary School, Idabel, Oklahoma

Background and Objectives

The pupils in the four grade-six classes in the Idabel Central Elementary School are not grouped according to academic ability. My class included children of below-average achievement, and Indian and Negro youngsters as well as whites. None had had economics before. Prior to starting the concentrated study of economics which will be described in this report, I established the foundations at every opportunity during the regular social studies activities. For example, while studying the nations of Europe and Asia, I pointed out that all societies have some form of economic system and that they can be classified in various ways. Free Enterprise, Controlled Economies and Mixed Economies were the simple categories that were used at first. The pupils also learned that all societies are faced with the same basic problem of allocating their scarce resources to meet the wants and needs of their people.

In a study of the Industrial Revolution, the children saw how agricultural and self-sufficient economies gave way to industrial, mass-production, interdependent societies. They learned how to classify the economies of European countries in these terms, saw how and why economic development occurred, acquired an understanding of productive resources, and began to discuss such things as exports, population, transportation, educational systems and living standards in relation to a given nation's economy. They watched television broadcasts for facts and situations that would illustrate what they were learning.

As the first semester drew to a close, I looked for an opportunity to relate the study of economics to something close to the actual experiences of the boys and girls. My objective was to help the children understand the following:

1. All societies must allocate scarce resources to meet the wants and needs of the people.
2. All societies must answer the questions: What shall we produce? How shall we produce? For whom shall we produce?
3. The United States economy is based upon the free enterprise system or market system.
4. The consumer has an important role in guiding and directing our economy through his "dollar votes."
5. A certain amount of government control and interference is accepted in our economy for the protection of the people.
6. Specialization and division of labor usually result in greater output.
7. Financial institutions act as intermediaries between business and the consumer.
8. The productive resources (land, labor and capital) are organized by the entrepreneur.

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9. Business may take the form of proprietorships, partnerships or corporations.

10. Profit acts as an incentive to business in our economy.

Furthermore, I wanted them to begin to employ the problem-solving method in which one identifies and states a problem, looks for various solutions, evaluates the possible solutions, and attempts to act on the conclusion that one or another solution appears to be the best.

Our community has many acres of fertile land once used chiefly for cotton farming. These farms have made the gradual change from self-sufficiency to specialization. Small farms are disappearing and large, mechanized agricultural establishments are replacing them. Other crops, such as soy beans, have been introduced. Industry is moving into the area, thanks to good roads and highways, an adequate water supply, and availability of labor. (Many small farmers are seeking employment in industry.) One of the new plants that has moved to Idabel within the past year is a manufacturer of western-style blue jeans. This was made-to-order for my purposes.

Development

One day I asked how many boys in the room wore the jeans manufactured by this new firm in our town. When Ricky and Billy held up their hands I asked them if they knew where their jeans came from. Some of the students' parents worked at the plant and others are farmers who produce the raw material from which such garments as blue jeans are made. All of the children expressed interest in finding out how the jeans are made, particularly when the emphasis was placed upon the important role played by the consumer in determining the production and price of such a commodity. Thus, we decided upon the title "Ricky and Billy's Dollar Vote" for our study and divided it into five parts as follows:

1. The Production of Cotton.
2. The Ginning and Marketing of Cotton.
3. Making the Fabric.
4. Manufacturing the Jeans.
5. Retailing the Final Product.

For Part One we focused upon a farm owned by one of the parents. This farm happened to be a partnership, so we were able to discuss this form of business enterprise. The owners, of course, were the entrepreneurs. We compared this large, modern farm with the self-sufficient farm of the past, and studied the employment of machines, division of labor and the technology in this endeavor. A farmer spoke to the class about the operation of the farm and explained interdependence by listing the large number of people whose services make a contribution to his work.

One of the services mentioned by the farmer was that of the bank. We took a class trip to the Idabel National Bank, studied the different services it provides, compared savings and checking accounts, studied interest rates, and learned about the function of the Federal Reserve System. The problems of inflation and recession were brought up at this point, current news reports were examined, and posters, charts, graphs and transparencies were made to illustrate the related problems and concepts. The President's attempts to curb inflation were examined and became the subject of reports.

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A committee was sent to visit the offices of the government agencies which provide services to farmers. They reported to the class on the different types of loans farmers may receive and explained the cotton allotment program. This, of course, was an excellent example of how the government enters our economy. Technological progress in agriculture was studied from the invention of the cotton gin to the present time.

The class studied the cotton market and a student interviewed a local cotton buyer. Thus, we saw the mechanism by which cotton gets from the grower to the textile mill. This was a good illustration of the workings of the market econony. Materials were obtained from the Cotton Institute and from various mills. We studied the history of the textile industry, saw the way in which the industry depends upon other sectors cf the economy, examined the demand situation, and noted how cloth manufactured in one part of the country gets to markets in other parts of the nation. Interviews with business people were a valuable source of information.

A trip to the factory was a major event. Plans were made in advance. The personnel director of the plant received a summary of our study and a list of questions developed by myself and the students. Before making the trip we reviewed what we had learned so far and discussed what we would do at the plant. A field trip should always be preceded by arrangements such as these, for the host should know what is expected of him and the class should know what you hope to accomplish through the trip. The plant manager covered all of the preplanned questions and answered many more which the pupils raised after his talk. He was so impressed by the knowledge that these children had acquired and by the excellent questions they had prepared, that he asked for a set of the questions to use as a guide for future class tours. A follow-up discussion was held after we returned to school.

When we got to the final phase of our study, we selected a well-known retail chain for intensive study. The firm provided us with information about the company and about the marketing procedures it uses. We had already learned how the product gets from the factory to the retail outlet. The class studied the history of the retail chain, learned how to order by mail, and made a trip to one of the stores. When the pupils found that one could open a charge account in the store, their natural curiosity about this service enabled me to teach about the cost of credit and the function of interest. We had traced the jeans from the time the cotton is planted until the time Ricky and Billy received them for their use. In the process, numerous economic facts, concepts and principles were dealt with in a manner which the children found both interesting and meaningful.

Evaluation

Evaluation is most effective when it is an on-going and multifaceted process. Tests can be instruments for learning as well as devices for measuring student progress, and testing can take many forms. One test which I developed for this study required the pupils to apply their knowledge to new situations. At the top of the test paper there would be a map of an imaginary country showing its topographical features, natural resources, and major roads and waterways. The students were asked to study the map and respond to such questions as these:

- Where do you think people would settle and why?
- What kinds of occupations would the people most likely have?

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- What needed resources are lacking?
- What are some industries that might develop in this country?
- By what means would people be most likely to travel?

More complicated situations were introduced in the later tests. The discovery of a new resource (gold in one case; salt deposits in another) was added to the map with questions such as the following:

- Describe the sequence of events that might occur as a result of this discovery.
- What would you predict for the economy of this area 20 years after the discovery?
- What problems might appear in exploiting this newly found resource? (In one case, the resource was found in a mountainous area.)
- What might happen if this resource is exhausted after 40 years?

Finally, in the most complex test of all, the pupils were asked to draw comparisons between two of the imaginary countries with questions such as these:

- Compare the probable growth patterns of the two countries.
- Compare the needs of the people in these two areas.
- List and discuss the problems these two areas might encounter.
- What might be the roles of the leaders of these two countries.
- Compare the means of transportation and communication.

The ability of the students to handle examinations like these and the quality of their papers and oral reports indicated that they had done much more than memorize simple facts. They made audio tapes on such topics as the production of cotton, economic opportunity loans, the textile industry, and the retailing of the final product. They wrote intelligently about banking, opportunity cost, inflation, the profit system, the factors of production and recession. Charts, graphs and posters were made on such topics as competition, government spending, forms of business organization, profit margins and inflation. The pupils made crossword puzzles using economic terms, drew maps showing the Federal Reserve Districts, constructed graphs of such things as cotton imports and exports, and arranged bulletin board displays on economic issues and topics.

Informal or subjective means can also be used for evaluation. Thus, I noted that student interest and participation was high during this study. The economic aspects were correlated with other subjects, so that there was greater interest shown in spelling, grammar and mathematics. (Math, for example, was needed in determining percentages in their graphs.) Parents made many comments about their children's interest in current news. One family was in for a shock when their son took over the conversation with some English visitors by asking them about the British economy and the chances that the United Kingdom might join the Common Market! This so impressed the visitors that they came to the school to meet the rest of the class.

The children acquired confidence in their own abilities. They began to be more at ease with adults, for we had had many adult speakers in during the year, and many children had interviewed adults in the community. They survived a rigorous "workout" when they were questioned about their studies during a P.T.A. Open House meeting. Economic terms entered into their daily conversation, and they began to employ the problem-solving approach in many situa-

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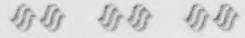
tions. Not only did these young people learn how our economy is structured, how the consumer helps to determine what is produced, and how the market place functions in a free enterprise system, but they came to realize the importance of education in economic development and in their own lives. The children indicated that they were eager to continue with this sort of work, thus realizing that although they had learned a great deal there was still much more to be done. It was extremely rewarding.



The Freaky Frog Company

A Fourth-Grade Economic Enterprise

Edmund F. Greenalch
Highlands Elementary School, Spring Valley, California

Background

Believing that everyone should have a working knowledge of the economic system in which they live, it was my aim to give my fourth-grade pupils a constructive experience that would improve their understanding of the American economy. It seemed to me that the best approach would be to develop a project in which the children could actually gain experience in answering the basic economic questions of what to produce, how to produce, and for whom. Ideally, the home and the community would be involved, and the inquiry method would be used to help the children learn to think for themselves. Such concepts as division of labor, supply and demand, and functional distribution of income would be learned through their application to a realistic situation in which the pupils were interested.

The children had been introduced to production and consumption as it relates to their families, they knew that choices must be made because wants are usually unlimited while resources are relatively scarce and the factor of interdependence had been discussed. They had had some lessons on the role of banks, why incomes differ, and how businessmen make decisions based on costs and risks. The study of economic systems began when we were studying the land and people of Japan. In discussions, group work and assigned readings we had compared Japan with California. One day a child in a discussion suggested that we go to see the Japanese Village at Sea World, an idea that was received with great enthusiasm.

Each child would have to have 80 cents to go to Sea World, but children are not permitted to bring money from home for a school-sponsored field trip. Thus, the problem presented itself—how could we get enough money to make the trip? To get ideas, we viewed the filmstrip "Economics in the Home, School,

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Community—Distribution of Goods" and the film "We Want Goods and Services." After discussing these, the children came to the conclusion that they should produce and sell a product to raise the needed funds.

Development

The first question was: "What to produce?" The class knew about the importance of consumer demand, so it was decided that a survey should be made in the school to see what kind of product would sell. A poll was taken, and the responses were listed and categorized under food, toys, models, clothes and candy. Toys were clearly favored, but it became necessary to ascertain what sort of toy would be popular. Further questions revealed that a toy that had some practical use would be preferred. A stuffed frog that could serve as a door stop was chosen as our product and given the name "Freaky Frog."

Next we had to determine what we would need in order to produce the frogs. A chart was made of the items that would be needed, categorized by factor of production (natural resources, capital and labor). Money would have to be raised to pay for materials, so ways of financing our company became a major topic for discussion. They decided to apply for a loan at a commercial bank. A "business license" was obtained from the principal, and the school nurse inspected the room to grant health clearance. Committees were established to investigate costs and prices, and a budget was drawn up. We would need a loan of $20.00 from the bank. In order to convince the bank that the risk would be minimal, a careful study was made to obtain an estimate of total revenues and total costs. After considering all costs, including wages for our workers, we found that we would have to sell 48 frogs to be able to pay all costs and make a profit.

A committee was elected to go to the bank. I had discussed the project with the bank manager first, of course. The bank manager greeted the committee, explained the bank's operations, studied the proposal, and then informed the committee that he could not grant the loan unless they formed a general partnership. They would also have to fill out a credit application, listing all their assets and liabilities. A general partnership was formed, with all members of the class signing the agreement. Company officers were elected (and paid salaries), responsibilities were identified, and meetings were scheduled. A list of assets and liabilities was made and the committee returned to the bank with this list and a copy of the partnership agreement. The loan was approved, a promissory note was drawn up, and a checking account was established for the Freaky Frogs Company. The children were instructed in the use of the checkbook and were informed that the loan would come due in one month. The interest would be $.13 for the month.

Now the preparations for production began in earnest. Tools were assembled and materials were purchased. Checks were written by the Treasurer and co-signed by me for these purchases. A ten-step process was developed for producing the frogs. Mathematics lessons were used in making the necessary measurements. The recent study of Japan was recalled, for we had seen pictures of production lines in Japanese television factories. Some, however, wanted to have the frogs made on an individual basis. An experiment was set up to see which method would be better. Ten children working individually were compared with ten working in a production line. Each group was given the same amount of time, resources and materials. When the production

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line produced four frogs in the time that the others had taken to complete only one, the class became convinced of the superiority of division of labor and specialization. This experiment also led to improvements in the production line, however, for it had become evident that more labor was needed at certain points. A film-strip on division of labor also helped at this stage.

Several departments were established. These included a Production Division, a Clean-Up Department, an Order Department, Advertising, Sales, Personnel, and Accounting. Accounts were kept, recording all expenditures. Orders for frogs were recorded and filed. Leaflets and posters were made to advertise the frogs and advertising space was obtained in classroom newspapers. A price of $2.00 had been established for the frogs, although those which were below standard would be sold at $1.50. When some children did not work as much as others, it was decided that wages would be based on time actually worked. A study was made of various methods of wage payments and it was decided that different jobs would command different wage rates. A "wage card" was kept for each child, indicating the type of job he held, how much he worked each day, and what he had earned daily. Work requiring little skill commanded a wage of $.04 or $.05, while sewing machine operators received $.06, and managerial people received $.08. As efficiency improved, an across-the-board wage increase was granted.

The total revenue from the sale of frogs was $65.00. The bank loan could be repaid, all costs could be met and there would be a profit. Now the class had to decide what to do with the profits. One proposal was that the money be placed in a savings account, but this would have to be done on an individual basis and the interest rate was not attractive. I suggested that they buy corporate stock and after the visit to Sea World they gave some thought to acquiring some of the stock of that corporation. A stockbroker visited the class, but when he called their attention to articles on the recent decline in the stock market they decided not to take the risk. A third idea was that the money might be reinvested in our own firm. To boost morale, they used some of the money for a Japanese dinner (including everything from seaweed to octopus), and then purchased materials for an art project. We still had money left in the checking account ($7.00), and after much discussion it was decided that this should be donated to an organization working to help preserve our local environment.

Evaluation

This project gave the class, the parents, important members of the community, and me an insight into children and their ability to learn and to apply basic economic concepts. In a self-evaluation, it was concluded that we had achieved the following:

1. We had learned to work together effectively, using the factors of production efficiently to produce a good product.
2. In producing and selling a product we had helped to meet some of our own material needs.
3. We had learned how to advertise and sell a product.
4. We gained first-hand knowledge of the function of banks in our economy.
5. We learned the importance of consumer demand in guiding and directing production.

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6. We gained experience in planning to produce a product, acquiring the necessary materials, determining wage rates, and making payments.

7. We learned how to handle a budget and how to balance our accounts.

8. We studied various ways of investing money and learned to consider the alternative opportunities.

9. We had done something of value for ourselves and for others.

It should be noted that every part of the elementary curriculum was brought to bear in this project. Arithmetic was used in measuring the materials, determining wages, keeping our accounts, and in preparing production and sales graphs. Oral communication improved as the pupils made sales speeches, ran their business meetings, conferred in discussion groups, engaged in role-playing activities, and talked with adults (such as the bank manager). Good grammar was necessary for the development of advertising materials, the writing of business letters, and the preparation of reports. The constant need to peruse books, magazines and newspapers to get information and ideas served as reading exercise. Art was a key subject, for posters had to be made and illustrations had to be drawn for advertisements. Various crafts were used in the actual manufacture of the frog. The social studies aspect involved far more than economics, for the children had to learn how to live and work together in a democratic fashion, how to use parliamentary procedures, and how to establish rules for working in large and small groups. Lessons from safety education were applied to the assembly line procedure, for we were often using tools that could be dangerous if not handled properly. Science was related in the use of some of the raw materials and equipment, and in the discussions that led to our decision to donate the profits for environmental protection.

In summary, everyone involved in this project became convinced that fourth-grade children *can* learn economics if it is applied to something they find interesting and important, if they see its relationship to their everyday lives, and if a practical rather than an abstract approach is used. I think we proved that the study of economics can not only be stimulating and rewarding, it can even be fun.*

*The activities described above are excerpts from a 46-page report submitted by Mr. Greenalch. Because of limitations of space, we have had to omit details on the materials used, how the production line was set up, and the like. *The Editor.*

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Broadening the Understanding of Economic Goals in Grade Six

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Background

Economics, the other social science disciplines, and—indeed—all of the subjects included in the curriculum have meaning only if they are applied to the aspirations and goals of human beings. The use of economic goals in the classroom is a convenient teaching tool, for it helps to focus attention upon the problems and hopes of the society that has established those goals. The study of economic facts, concepts, principles, problems and theories can be related to the economic goals, so that the pupil is constantly aware of the purpose of studying the material. Futhermore, the goal-orientation provides a means of evaluating economic arguments and principles, for one can always ask how well those arguments or principles would serve to help achieve one or more of the recognized goals.

The goals were introduced to the children in simple terms. One of my purposes was to lay to rest the erroneous assumption that economic understandings can be included only in the social studies, and I was determined to relate economic goals and concepts to every subject in the curriculum when it was appropriate to do so. Furthermore, the goals themselves are not rigidly confined to economics, but apply to many aspects of human living. Thus, the goal of *growth* (which was to be the key goal) applies not only to increases in real per capita income but to progress in developing human values. *Security* involves more than material comfort, for a person may have a storehouse of riches but lack the security that comes with self-confidence and human understanding. The goal of *efficiency* relates not only to the allocation of scarce productive resources, but to the employment of good study habits and the wise use of one's time. *Justice* refers to fairness in such things as pupil-teacher relationships as well as to the distribution of personal income. *Stability* pertains to the maintenance of a proper balance in our work and personal lives and not simply to business fluctuations. The goal of *freedom*, so basic to the free enterprise system, has obvious implications for life in a democratic society; but it also rests on the notion of responsibility, for freedom can degenerate to license if people fail to realize that it must be used in a manner that does not impinge upon the rights of others. To these traditional goals we added *humaneness*, implying a concern for others in our personal contacts as well as in our economic endeavors.

Development

One might think that the Old Stone Age has little meaning to the children of 1970, and this would be a valid assumption if it were taught simply as a

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series of historical facts. We found, however, that the seven goals we had identified could be applied to life in the distant past. The children projected themselves into the Paleolithic era, trying to feel as Old Stone Age man felt, and to think as he must have thought. This was fun for the class, as they were allowed to express their creative imagination freely. They entered into the spirit of the thing eagerly, and the goals took on greater meaning as they looked at Stone Age life in terms of how well it met one or more of the goals. In fact, the four cultural revolutions of man were approached in the same manner. The economic goal of security was applied to Neolithic man's building of permanent homes, his domestication of animals, and his development of agriculture, for example. Efficiency was related to the beginnings of specialization in the villages. By the time we got to the Industrial Revolution the children were able to associate the goals with economic developments and to demonstrate their understanding through written reports and large charts. An Economic Goal Scrapbook was made, illustrating such things as the application of human, capital and natural resources in economic growth. Art work was used extensively and pupil drawings soon covered one wall with creative illustrations of the application of the economic goals.

The productive resources of one era were compared with those of the other eras, not only to show how one differed from the other but how later ages were built upon the earlier. The basic problem of scarcity was discussed as it applied to each cultural era and this problem was seen as the "bridge" that connected each culture by presenting them with a common dilemma. A modern problem that came into focus in our classroom very early was the problem of ecology. After the study of three of the four cultural revolutions had been completed, the children were ready to approach the problems created by man's modification of his environment. It was amazing to see how these sixth graders could detect the effects — political and social as well as economic — of such developments as the internal combustion engine. The threat that man poses to his environment had not been ignored earlier, however, for even in the study of the Old Stone Age it was seen that man sometimes misused nature's endowments and often failed to control one of his most valuable resources, fire.

The crises that have plagued the 20th century were not seen as external catastrophes, but as immediate issues for which each individual (even the sixth grader) bears some responsibility. Even if the individual is not responsible for bringing about the problems, he is still responsible for using his abilities to seek solutions. At least, this was the attitude that had developed in the classroom. Debates and panel groups were used to allow the children to express their opinions and to see the advantages of having differences aired. Not only did these activities teach them to respect one another's rights to be heard, but they often helped them to see that the solution to one problem (such as the development of machines to do a particular job better) can create even more problems (such as pollution caused by the machines). This also led to an understanding of the usefulness of the problem-solving method of approaching important issues.

The environmental issue was one that aroused the attention of the children to the point where they eagerly searched for information, often using publications aimed at a much older and more sophisticated audience. Everyone kept up with news broadcasts, read newspapers, perused such journals as

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The Scientific American, and in other ways sought to increase our understanding of the problem. Each newspaper clipping that was placed in their notebooks was related to one or more of the seven economic goals. A threatened strike on the part of employees at the waterworks was seen as a conflict between the goals of freedom and security. (The workers' freedom to strike was at odds with the community's security in that a shortage of water would be damaging. Of course, the workers' security might also have been an issue in the conflict.) An item on world population growth was associated with the concept of scarcity and the goal of security, for the greater demands on the world's food supply could result in too little food for many people. The goal of humaneness was applied to the welfare reform bill, to an article on the low pay received by mail carriers, and to the President's foreign aid request. One youngster was even able to see the relationship between a news story on interest rates and the goal of economic stability. In seeking out information on growth, some of the children concentrated upon various sectors of the economy as well as on the nation as a whole. One boy, for example, studied trends in the stock market and in housing construction.

Through interpretation of editorial cartoons, newspaper articles, graphs and the like, the children revealed a keen insight into the economic problems of today. In their art work they demonstrated their ability to apply the economic goals and concepts to history. Pictorial time charts were made, for instance, which showed the growth of civilization, relating technological and economic developments to appropriate political and cultural events.

Culmination

Children enjoy sharing their learning with others. In particular, they like to dramatize the facts and concepts that they have mastered. Thus, a short play was written for the entertainment and instruction of other classes. The play, entitled "Man Alive," focused upon ecology. Among the characters were Mother Nature, Father Time, Man Alive, Water Clean, Forest Tall, and others representing the gifts of nature. All of the dialogue was in rhyme. An example follows:

Mother Nature: Man Alive, you inherit the earth.
What about those of you who have not yet had birth?
Air is for your care,
but with others you must share.

* * *

For *you*, children! I am worried for you all!
A threat has already reached Forest Tall.
A wonderful resource is a tree!
Truly a servant for you and me.

Characters representing soil, water, air, green plants and animal life complain of the abuse they have received from "Man Alive." At the end, man realizes the damage he has done to his environment, acknowledges the dangers that his carelessness has created, and shows his determination to discipline himself and to work for the preservation of the earth and its bounties.

APPENDIX TO CHAPTER 2

Good Ideas in Brief: Intermediate Level

MR. JOSEPH BARTOLOTTA of the *Holmes School* in *New Britain, Connecticut*, prepared a booklet entitled *Ecology for the Elementary Schools: An Introduction to Field Studies* to serve as a guide for other teachers in his area. The booklet defines ecology, lists and explains the basic concepts related to an understanding of ecology, contains maps of the area to be used for field studies, and includes a number of "experience sheets" which can be used by the pupils. Each experience sheet states the topic, gives a brief introduction to that topic, sets forth a problem for the student to tackle, explains the methods and materials the student will need, and ends with questions to be answered. Although basically a science program, Mr. Bartolotta's lessons include such economic topics as scarcity (unlimited wants vs. limited resources), the causes of pollution, the importance of natural resources as a factor of production, production and consumption in our society, and goods and services.

TERESE R. BLANC, in cooperation with VERNE SWEIGARD, had the fifth graders at the *Highlands Elementary School* in *Spring Valley, California*, establish a corporation to produce place mats and table decorations. A factor that made this project different from the usual classroom corporation projects was that the stock sold to pupils in the school was not fixed in value. The shares were initially priced at 20 cents, but when the demand for it greatly exceeded the supply, many pupils were willing to pay as much as 25 cents a share. Throughout the three-week period of this project, the value of a share ranged from a low of four cents to 23 cents at the end.

MRS. BETTY LYNN SNIDER of the *Forrest Park Elementary School* in *Pine Bluff, Arkansas*, had her sixth graders put their knowledge of economics to work in attempting to help solve some of our current problems. After a thorough study of the economics of pollution, the class developed an "E-Day" project to do something about the problem. Posters were made to inform others, letters were written to the governor, and the pupils launched a clean-up and improvement project on the school grounds. To the tune of "America the Beautiful" the children sang:

America, America, thy birds
have fled from thee.
Thy fish lie dead
by poisoned streams,
From sea to oily sea.

The problem of poverty was approached as an example of the misallocation of human resources. After seeing the results of poverty, the children were eager to take some sort of immediate action. Committees were set up, tasks were assigned, and a poor family was selected to receive our help. During this project to help a less fortunate family, the children learned about inflation, recession

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and depression, the relationship between education and income, and other related economic factors.

MRS. CAROLYN GRAY of the *Meadow Lane School* in *Lincoln, Nebraska*, inadvertently provided her fifth graders with a good lesson in the problems that business can have with taxes. She had her pupils set up a classroom company to produce and sell lint brushes. Corporate officials were elected, studies were made of production costs, money for materials was borrowed, production lines were set up, and the brushes were manufactured and sold at a profit. Tax forms had been obtained from the Tax Commissioner's office and were filled out and returned with the appropriate sales tax. Although they indicated on the forms that the business had been terminated, letters and forms continued to come from the Tax Commissioner's office for the next three months. Repeatedly, letters were sent and forms were filed explaining that the business no longer existed, but it took a telephone call to the Tax Department before the bureaucratic machinery could be brought under control!

MRS. JEAN M. ULLYETTE of the *Ellis B. Hyde Elementary School* in *Dansville, New York*, has developed a guide for including economics in Negro history at the fourth-grade level. One of the major activities is the preparation of a puppet show in Negro history. Each pupil is assigned to make a study of an outstanding Black American, and their findings are presented in the puppet show. Economics is included in the presentations of such people as Arthur G. Gaston (businessman), A. Philip Randolph (labor leader), and Robert C. Weaver (member of the President's Cabinet). A set of questions was prepared for follow-up discussions of the puppet show. The questions are designed to bring out the economic effects of George Washington Carver's work with peanut production; the function of the profit system and of banks in Gaston's becoming a self-made millionaire through the insurance industry; the role of unions as illustrated through the life of A. Philip Randolph; and urban economic problems of concern to Robert C. Weaver in his position as Secretary of the Department of Housing and Urban Development.

MR. DONALD T. SVINTH of the *Kapowsin Elementary School* in *Graham, Washington*, turned his classroom into a simulation of the marketplace in order to give his sixth graders a realistic understanding of economic principles. Goods and services normally exchanged without money cost in a classroom were subjected to the supply and demand conditions of the free market. If a child had neglected to bring a pencil to school, he would have to "buy" one, for example. The price would depend upon how badly he wanted it (reflecting utility), his ability to pay for it, how many others wanted to buy the same item, how many pencils were available for sale, and how many sellers were willing to put pencils on the market. The children, in turn, were paid for performing such services as acting as room monitor. Prices varied from day to day, reflecting demand and supply conditions, just as they do in the marketplace. The teacher served as class banker and as "government," controlling the supply of the play money that was used. Records were kept of all transactions, and class discussions were used to probe into the reasons why a price had changed, how money performs several functions, why banks must be cautious about making loans,

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and the like. The class would also discuss problems as they arose, such as the inability of some students to repay loans. It was found that even the slowest of students could grasp the economic concepts inherent in the simulation.

MARILYN BURCH, ANN HARNESS, and MR. G. M. WEISS of the *Woodland Elementary School* in *Elkhart, Indiana*, employed team-teaching and combined their fourth-, fifth- and sixth-grade classes in a three-week study of economics. One of the major industries in the area is the manufacture of auto trailers, so the children were naturally interested in this business. A representative of the industry met with the teachers and helped to plan the activities. The children visited the local firm to get ideas on how to set up their own corporations to produce model trailers. Several competing companies were established, each including pupils from all three grade levels. There were three manufacturing firms, three supply companies, and three sales and advertising establishments. The manufacturers purchased materials from the suppliers, constructed their model trailers, and relied upon the sales firms for advertising. Some of the competitive aspects of the business world were simulated through sealed bids submitted by buyers. The firm which had produced the best trailers at the most reasonable price was thus rewarded with good sales and profits. The "winning" supplier was determined by volume of sales. The winner's materials were clearly superior in workmanship and the competing suppliers went out of business. Thus, these children learned about supply and demand, profits and business costs through a realistic situation in which the resources of three teachers, three classes and the business community were pooled effectively.

MRS. MARGARET A. DURCH of the *Chestnut School, Chippewa Falls, Wisconsin*, has found that children in the fourth grade can discover important economic concepts for themselves in role-playing situations. Her pupils were divided into three groups—workers, businessmen and bankers. Each worker could choose his own occupation, indicating his job by an appropriate hat or badge. The class would decide on the wage for each occupation. The businessmen included producers of clothes, shoes and cars. The bankers provided money, cashed checks and made loans. After the first day the banks were in trouble because the bankers had failed to charge interest on the loans they made. The cars were too expensive, so the auto manufacturer failed to make a single sale. The shoes, too, had been overpriced and thus failed to sell rapidly. The boys complained because the dress factories were producing nothing but girls' clothes. Thus, the children saw that banks must charge interest, that there is a relationship between price and the quantity that can be sold, and that consumer demand plays an important role in guiding and directing American businesses. After the first day, things changed. The bank began to charge interest and made a profit. The clothing manufacturer started producing boys' as well as girls' garments. Shoes became cheaper, and the auto manufacturer diversified his output and began to produce other products. At the end of the second day the class discussed each enterprise and why some made profits while others suffered losses. Later, the children studied businesses in the community, visiting firms of their choice, interviewing businessmen, making scrapbooks about these firms, and setting up displays.

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CHAPTER THREE

Junior High School Level: Grades 7-9

Diminishing Marginal Utility

A Simulation Game for the Eighth Grade

Mrs. Jane Cashell
Madison South Junior High School, Mansfield, Ohio*

Introduction and Background

As participants in a workshop in economic education we were assigned to write a "teaching episode," using only one economic concept and limiting it to three class periods. We were also expected to teach the episode, so it was necessary to choose a concept that would fit into a particular subject and grade level.

The social studies curriculum of our county provides that concepts be taught within a unit framework so that understandings and generalizations may develop and a broad picture of the subject area may emerge. Economics is not required, but teachers are encouraged to be creative and to add to the existing curriculum whenever possible. Economic concepts are included at every level through junior high school, wherever they can be related to other subject matter. In selecting Diminishing Marginal Utility, I chose a concept that had not been taught in the first seven grades. Although it was believed that it might be too difficult for eighth graders, I felt that it would help to meet the goals of the unit then in progress and that the pupils could learn it if sufficiently motivated. The class that I chose was heterogeneously grouped and about equally divided between boys and girls.

A unit on the Industrial Revolution was being taught to this class, and I had little doubt that Diminishing Marginal Utility could be related to some of the problems of industry, such as overproduction and its effect on the economy. Several high school teachers had purchased commercially made simulation games and reported great success in using them. This started my thinking about developing a game that would arouse interest, get the students involved, and convey an understanding of the concept.

Development

Five useful items were selected to represent various needs and wants—water, shelter, transportation, fire and food. Transparencies showing a large

*Mrs. Cashell is the Richland County Social Studies Supervisor, with offices at 50 Park Avenue East, Mansfield, Ohio. The class with which the game was used was "borrowed" from a regular teacher at Madison South Junior High School.

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glass of water, a substantial building, a new automobile, a roaring log fire, and a large loaf of bread depicted each of these items. Five problem situations involving a need or desire for each of these items were written and attached to small cards of about three by five inches. Small sheets of paper were prepared to be used as "bid slips."

The class was divided into five groups, each with its own identification number, so that the process of recording bids could be swift and accurate. The following rules were explained to the class:

1. The problem you have drawn should be read *silently*.
2. Everyone will view the transparency depicting the item for which the bids will be made.
3. Each group will discuss their problem situation and quietly decide how much they will bid. Five minutes will be allowed for this.
4. Each group will decide on a top limit for their bid and write this on their bid slip.
5. If the problem is so serious that no expense should be spared to obtain the needed item, a group may write "U" (for unlimited) on their bid slip.
6. No group may reveal its bid to another group.
7. After each group has decided upon its bid, the teacher will ask each group to read their problem and state their bid. Bids will be written on the chalkboard beneath each group's identification number.

The problems represent different degrees of urgency. For example, note the difference between two of the problem situations in which there is a need for transportation:

- The basketball game is over. There was an overtime and it lasted longer than usual. It is 4:45 and your father said you must be home before 5:00 or you'll be grounded for two weeks. The most important dance of the year is this Saturday and your date is one you've really been waiting for. You can't possibly walk there in time and there is no one who can take you. WHAT WILL YOU BID?
- You are sitting at home alone. Your father is out of town on a business trip and your only sister is in college 125 miles away. The only neighbor within ten miles has gone shopping with your mother. Suddenly the phone rings. There has been an automobile accident and your mother and the neighbor are both in the hospital. Your mother is asking for you. WHAT WILL YOU BID?

The teacher must insist that bids be realistic, and the pupils are encouraged to look at various aspects of the problem. For instance, does it affect the welfare of others? Group cooperation has to be stressed in determining the seriousness of the problem and what a reasonable and realistic bid should be.

After all bids have been determined, a pupil from each group reads his group's problem to the class and reveals its bid. The rest of the class raises questions on how they arrived at that bid, what factors were considered, and why. This forces the students to think critically, to defend their actions, and to avoid submitting unrealistic bids. There were many lively discussions and even a few heated arguments when these problems were under class consideration. Very quickly, the pupils were able to see the relationship between *utility* (although the term itself was not used at first) and demand.

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Two problem situations were taken up during the first day and two more during the second. More time was needed on the second day because the class was becoming more sophisticated in analyzing the problems. The difference in urgency of need was not always as clear-cut as in the example given above. For instance, consider the two problem situations below in which there is a need for water:

- It is a beautiful hot summer day. You and a group of your friends have decided on a spur-of-the-moment basketball game. You have played steadily for over thirty minutes. You are terribly thirsty and there is no water close at hand. WHAT WILL YOU BID?
- You have just finished eating a very salty fish dinner. You have driven twenty-five miles into a sparsely settled area with houses miles apart. It is late at night. You are extremely thirsty. WHAT WILL YOU BID?

If the group dealing with the first problem above should submit a bid substantially higher than that of the group handling the second problem, an extended discussion might follow. One might raise such questions as these: What factors did the first group take into account in submitting such a high bid? Are they justified? What explains the relatively low bid of the second group? Did they fail to take some important factor into account? Which of the two bids is more realistic? Why?

On the third day the class worked together as one large group for the first time. The last problem was taken up and the class was asked to make generalizations. They were asked to generalize about why they made the bids. From this they could understand that need (utility) was the underlying factor. Now the term Diminishing Marginal Utility was introduced for the first time. Each word was defined and applied to the problem situations. For example, the pupils pointed out that after quenching one's thirst with a glass of water or two, the need for more water would diminish. They went so far as to show that a point could be reached where more water would provide no satisfaction at all and might even become repulsive. It was seen that the amount that they would offer for water would eventually decline to zero. (One could even construct a downward sloping demand curve from this.)

The word "utility" evolved from a discussion of "use." The word "marginal" emerged from a discussion of how a person knows where to stop purchasing an item. Familiar things, such as the margin in student notebook paper, were helpful in bringing about an understanding of the term as used in economics. Just as the margin in notebook paper is an extra or additional amount of paper, the marginal unit to a consumer is the additional or extra unit that he obtains.

Once the basic terms were clear, the class was asked to make up a law or principle based upon their experiences during the simulations. First they developed this principle: "As your need for something diminishes (decreases), the utility (or usefulness) of it also diminishes." They even indicated how this might appear on a graph, going so far as to have the downward-sloping curve cross the horizontal line at the bottom. While they did not use such terms as "negative marginal utility," they did explain that it was possible for some items (such as water) to become so abundant as to constitute a nuisance, and that one might thus pay to have the flow of the item stopped or reversed. After further discussion, they developed their final generalization: "As the quantity of something is increased, the benefit one gets from adding more to it will de-

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crease." They supported this with several good examples and were able to explain what they had done and why.

Outcomes

It was easy to observe a carry-over into changes in student attitude and behavior. Other teachers remarked on how the students remembered the concept and related it to other assignments. When the art teacher began a unit on cartooning, he included an assignment on Diminishing Marginal Utility. The pupils drew cartoons illustrating this concept. For example, one cartoon showed a boy at a cold-drink stand on a hot day. As he continues to consume the cold drinks, the expression on his face shows less and less satisfaction. Finally, he refuses another drink, even though it is offered free.

During the unit on the Industrial Revolution, the class was able to relate the concept to historical events. In formal examinations, the class did extremely well on multiple-choice questions, an essay question, and a graph dealing with Diminishing Marginal Utility. The students were asked to evaluate their class in terms of the activities they remembered as being especially worthwhile as well as those that should be dropped or improved. Every pupil in the class rated the simulation game as an especially worthwhile activity and stated conclusively that it should remain as part of the unit.

There was also much informal evidence that the activity had had an impact. A boy who had been a poor student and had often been involved in discipline problems was given the opportunity to be a leader in his group and proved that he was capable of dealing sensibly with the problem situations. Other students began to listen to his opinions with respect, and both his academic work and deportment showed a marked improvement. Although at first many of the pupils gave childish solutions, they soon began to take the games seriously. They were even overheard during study periods and in their locker areas discussing whether a bid had been realistic, or whether they had failed to account for all relevant factors. During the remainder of the year students often sought me out to tell me of another example of Diminishing Marginal Utility that had occurred to them. For this group, the term became their own "private thing" and they would use it at every opportunity. For instance, one pupil would see another one eating an apple or candy bar and call out: "Watch that Diminishing Marginal Utility!" Some even enlightened their parents and other family members. One parent called to tell me that her daughter had enjoyed the game so much that she created a new version for the family to play at home. I am now convinced that children can acquire a realistic understanding of economic concepts and can learn to apply them.

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Economics in Everyday Life

Activities for Teaching Personal Economics to Slow Learners

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Introduction

In the fall of 1968 a program for slow learners and underachievers was initiated at Rogers Junior High School. Recognizing the limitations of these students, we felt that their needs could not be met through the ordinary classroom presentations. The children would have to be presented with special materials and activities that would give them a feeling of success, improve their self-image, and help them acquire a better attitude toward the school and the community. Although these pupils ranged from 13 to 16 in chronological age, their mental ages ranged from eight to 12 years. In spite of their intellectual limitations, they must be educated to function in a social environment that requires a working knowledge of personal economics.

As a mathematics teacher, I felt that I could make my subject more meaningful to the pupils by showing them how to apply it to the everyday world of the consumer. They need to understand what money is, what money can do, how our incomes can be used more wisely, how banks service the consumer, what taxes we pay and why, how wages are determined, what types of insurance are available, and when and how to use credit. Thus, they can see that mathematics is not simply an abstract science, but a tool that helps them to function in the business world.

Activities*

I began by giving the students mail order catalogs and order blanks, and telling them to order anything they wanted, regardless of price. An enlarged order blank had been placed on one half of the bulletin board. A page from the catalog was placed on the other half. Pieces of colored yarn were run from the catalog number on the order blank to the number of the item on the catalog page. Different colored yarn was used for each item. This display helped to illustrate class discussions and served as a guide to the pupils when they filled out their own order blanks.

After they had learned how to use the order blank they were asked: "How do we pay for the items that we have ordered?" What money is, what money can do for us, and how the value of money is determined were developed during the ensuing discussion. The class learned that one can pay either by cash or by credit. Here they were taught how to fill out credit applications, why good references are usually required, and how one maintains a good credit rating. Films on instalment buying and the wise use of credit were viewed. They

*Miss Sydoriak's original report is over 100 pages in length. This section summarizes a few of the activities contained in that report.—*The Editor.*

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learned what is meant by a contract, what interest is and why it is paid, and how the cost of credit is determined. An agent from a local finance company visited the class to explain how we get credit, what the borrower should look for in the sales contract, and what the good and bad points of credit are.

In a role-playing situation, the teacher acted as the owner of a furniture store and the pupils took turns acting as customers. The buyer would discuss with the store owner the prices of various items, and how those prices would differ if he elected to buy on credit instead of paying cash. The buyer would then decide in each instance whether it was wiser to pay cash or buy on credit. The students were also given a worksheet which listed the prices and interest charged for the same item by three different stores and were asked to determine which store was giving the best buy.

Then we considered payment by check. An enlarged check, deposit slip, and check stub were placed on the bulletin board, each correctly filled in with a magic marker. Such films as "The Story of Money" and "Money and its Uses" were shown, and the various services performed by banks were illustrated on a chart. Using an overhead transparency of a blank check, we filled in the necessary information. Then each pupil was given a worksheet with blank checks and stubs to be filled in according to information contained in the worksheet. The use of deposit and withdrawal slips was then taught in a similar manner. In a role-playing situation, every student had a chance to be the "banker." They also learned the difference between commercial banks and savings banks, and between checking and savings accounts. The films "Banks and Credit" and "Using the Bank" were instructive. (Some films may have to be shown twice for these children.)

After the exercises on making bank deposits, the following question was raised: "Where do you *get* the money that you deposit in the bank?" Most of the pupils knew that people get paid for services performed, but they did not know how the employer determines how much to pay. Slow learners may not be able to master such terms as "marginal revenue productivity," but they can understand that there is a relationship between the value of a worker's output and the wage he receives. The fact that Federal income taxes and Social Security contributions are withheld from one's paycheck led to a discussion of these taxes and their uses. The pupils were also introduced to deductions for retirement plans and group insurance, and were given practice in computing a worker's net pay.

Armed with the facts and concepts outlined above, the students were ready to apply what they had learned to the problems of family budgeting. Each student was assigned a "make-believe family" and presented with an information sheet describing that family's financial situation. The sheet gave the number of children to be supported, the monthly rent, monthly car payments, the hourly wage rate received by the breadwinner, what their weekly earnings would be if there were no absences, and what items were deducted from the paycheck. The students were told that they would be "docked" for each day they were absent, and that this would necessitate a recomputation of their withholdings. Each pupil was presented with a checkbook to be used to pay his "bills." Budget worksheets were provided to help them plan their expenses, but otherwise they were on their own. Furthermore, each student was given a different "wage" and family situation, so that no two students had identical problems or incomes.

The students were paid their weekly wages, minus a day's pay for each day

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absent, and minus an hour's pay for each lateness. Monthly "bills" were sent to the students, some of which represented unexpected obligations. It was then up to each pupil to determine how much to spend on food, clothing, recreation, and so on. The "pay checks" were deposited in the class "bank," and all payments were made with checks drawn on that bank. At the end of the month each student received a bank statement. Budgets were made in duplicate, so that the teacher could have a copy as well. Records for each student were kept in separate manila envelopes on the teacher's desk. The student had the responsibility of making out deposit slips, writing checks to pay his bills, buying clothes and other items needed by his family, meeting financial crises (such as unexpected medical bills), paying his income tax, and the like.

To make grocery shopping a realistic experience, a 12-foot bulletin board was covered with grocery advertisements. Each student had to decide what groceries were needed, in what quantities, and what the total price would be. Their grocery lists were turned in each week with a check to cover the total amount purchased. After a few weeks had elapsed, each student received a Federal Income Tax Return Form 1040, and W-2 wage and tax statement. No two students would have identical returns. Each was responsible for filing his own return. They also had to reconcile their own financial records with the statements they received from the bank. Their budget plans were compared with their actual expenditures, and it was gratifying that most students managed to remain within the framework of their budgets.

Various other devices were used to motivate and interest the students and to make it easier for them to learn. For example, pamphlets were attached to a bulletin board so that the students could find them quickly. They were permitted to remove the pamphlets, use them and then replace them. They made a mural on a roll of white butcher's paper, depicting the economic concepts that they had learned. Contests were held to see who could complete a task first. Teams were formed to answer questions on mathematics and economics, a point being given for each correct answer. In playing the role of employer, each student had to determine how much his workers would receive, compute weekly earnings, make the appropriate tax deductions, and write paychecks. A local grocer visited the class and explained how to shop for specials, how to compare sizes of containers, how to choose the best meats, and other ways of saving money. In a discussion of housing, the pupils were shown the many things that one must consider in selecting a home—an old house may be cheaper than a new one, but might cost more to heat and to repair, for example. Nearly all teen-agers are interested in cars and it is not difficult to involve them in a study of the economics of automobile ownership. Skits on economic topics are fun as well as being educational.

Conclusion

Motivation is important for all students, regardless of ability or educational level. For slow learners, however, it is critical. Few of these children can see the inherent value of school work and this is particularly true of abstract concepts. They find it difficult to pay attention in class and they become lax in doing assignments. The techniques used in relating mathematics to personal economics succeeded in arousing and holding the interest of these youngsters. Students who had previously done little or no work suddenly became interested and were willing at least to attempt their assignments. Success in doing such

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tasks as filling out an order blank, correctly submitting a credit application preparing a workable family budget, computing sales taxes, determining interest, and filing an income tax return gave them a feeling of accomplishment. They no longer had to feel that they were automatically doomed to failure. By providing for a variety of interesting experiences, by approaching them first on their own level, by constant drill and practice, by relating one's subject to the real-life problems with which the students will soon be confronted, and by making it possible for them to succeed, the teacher *can* reach the child who is not intellectually gifted. With patience, a sincere concern for their welfare, and a recognition of the worth of each youngster as an individual, one can help the academically retarded to become useful, productive and self-sufficient citizens.

APPENDIX TO CHAPTER 3

Good Ideas in Brief: Junior High School Level

MR. JOHN F. MILLER of *West Side Junior High School* in *Little Rock, Arkansas*, uses the *Manpower and Economic Education* program developed by Robert Darcy and Phillip Powell to teach economic concepts to his ninth graders. He has found that simulations are effective in helping to prepare students for the world of work. Personnel managers from local industries visited the class and conducted mock interviews with prospective employees. After this they explained what they were looking for in an employee. The students were given job application forms to fill out, along with Social Security applications. A game called "Life Career" was then played. The students were divided into groups of three or four, each group containing students of both sexes. Each group was presented with a situation involving the conflicting choices available to a fictional student called Mike. They were given information on Mike's educational background, socioeconomic status, and the like. The groups were to decide whether Mike should remain in school (although he was a poor student) or quit to take a job, as his father wished. If he remained in school should it be an academic or vocational high school? Should he take a job and attempt to get on-the-job training or go to night school? Should he attempt to work part-time while continuing his education? In discussing these and other questions of a similar nature, the students had to consider such factors as opportunity costs, the economic value of education, the market for various types of labor, and so on. Mr. Miller had his pupils evaluate the course as a whole and every aspect of it. The results were highly favorable, 97 percent checking "very satisfied" or "satisfied" with the course, and nearly 100 per cent checking "very satisfied" with the participation and involvement of students.

MISS JUDITH M. TURCOTTE of *Milford Area Junior High School, Milford, New Hampshire*, included economic concepts in her seventh-grade science course by comparing a beehive with the human community. In studying the beehive, the pupils noted that the hive is located near available natural resources, that the bees produce a product, that specialization and division of labor occur, that the workers produce goods to satisfy the demands of the com-

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munity, and that a circular flow of goods and services can be found within the hive, much as in a human community. Examples from human communities were identified and compared with the beehive.

JOHNSON L. HOLSBERRY, JR. of *Hamilton Junior High School* in *Parkersburg, West Virginia,* is teaching a ninth-grade course in urban studies. As with other teachers confronted with the problems of presenting a new course, Mr. Holsberry has had to rely upon a variety of sources for materials. An interdisciplinary approach is used, with economic concepts being introduced where they help to shed light upon urban problems. Pollution is one topic included in the course and Mr. Holsberry collected newspaper and magazine articles, pamphlets and special reports for reading material. He also drew heavily upon resource persons. Community resources were used extensively. For example, the students interviewed businessmen in the city to learn what economic factors had led them to establish their firms in the area. Programmed units were developed and several simulation games were used. One game involved a simulation of racial problems in a typical city. The students were "born" Negro or white in an imaginary city, presented with demographic, cultural and economic data on the town, and then presented with racial problems. The simulation included such activities as organizing action groups, making presentations before the "city council," participating in elections for city offices, and dealing with problems of housing, employment and crime.

PRISCILLA LEAVITT and ODEL CALFEE of *Edison Junior High School* in *Parkersburg, West Virginia,* have developed a six-week unit for helping ninth graders prepare for the world of work. A career survey is made to determine what occupations the pupils hope to have in the future. Arrangements are then made (with the help of the students) to obtain speakers from the fields in question. The student is provided with an outline to help him gain as much as possible from the speaker's presentation. He is told to look for such things as the requirements for the job, the employment situation, possible disadvantages associated with the occupation, union status and the like. The student makes an intensive self-evaluation (including his grades, interests, abilities, health and personality characteristics) to help him see how well he can meet the qualifications for his chosen occupation. Individual conferences are held with counselors, and parents are invited to see the counselors as well.

ARTHUR T. BLAKE of *Wheeler High School* in *North Stonington, Connecticut,* teaches his ninth-grade general business students about the consumer price index by having them construct indexes of their own. Old catalogs and newspapers are used to ascertain prices in the past. The prices are listed in the first column of a worksheet. Current prices for the same items are listed in the second column. Where prices vary for the same item, as in the case of expensive durable goods, the average is computed to arrive at one price. Price indexes are then computed for the individual items and for the whole group. When students raise questions about price differences for seemingly similar items, discussions are held to find out why they differ. For example, a refrigerator with an automatic defrost mechanism costs more, but the students attempt to ascertain if this feature justifies the difference in price.

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MRS. DON E. DAVIS of *Del Dios Junior High School* in *Escondido, California,* includes some economics in her typewriting classes. To help the students understand the problem of inflation, for example, she has them type manuscripts on this subject. She also reads them pamphlets on inflation, stopping after each paragraph to let the student type the main thoughts in rough draft form. Discussions on the meaning of the term and the importance of the problem are held throughout, and filmstrips such as "Inflation and You" are shown to help clarify the issues. As a final examination, the students type a rough draft copy of what they have learned about inflation, and then type a corrected final copy. The test shows that the pupils do learn about inflation through this procedure.

MARY DUNN of *Blessed Sacrament School* and JOSEPH HURST of *Florida State University* in Tallahassee have developed a team approach for including economics in eighth-grade history classes. The game "Monopoly" was used for one period in the classroom and then modified during a second period to reflect the situation in a command economy. Pupils displayed frustration, anger and lack of incentive during the second period. Teacher-trainees from the University acted as group and discussion leaders. For a unit on scarcity and the allocation problem, the pupils worked in groups representing islands. Each group was given a list of resources that could be found on the island and then asked to respond to such questions as: "What goods and services must you provide first? How will your answer to this question place limits on later choices? How can you divide the work most efficiently? Is a government needed? Why? Why not?" The students drew up plans for survival on their islands, made physical models, presented oral reports, questioned one another on their plans, and wrote papers on how and why they had allocated their resources as they did. The class was also presented with problem cases, such as that of a mayor who is faced with $225,000 worth of essential expenditures, but has only $200,000 in his budget.

GREGORY T. PIERCE of *Springer Junior High School* in *Wilmington, Delaware,* includes economics units in his seventh-grade geography class. One interesting way in which this is done is through the use of recent articles which are duplicated for the class. Each article or set of articles is accompanied by a sheet which sets forth the objectives for using that particular article or set, lists the subjects contained therein, presents the pupils with questions to be answered or assignments to be done (such as: "List the ecologically destructive activities specified in the articles.") and establishes the time to be spent on it. The readings vary in difficulty. They are sometimes read in class together and sometimes assigned to groups. Students are encouraged to assist one another and the articles serve to stimulate class discussion.

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CHAPTER FOUR

High School Level: Grades 10-12

An Objective Examination in Economic Reasoning for Twelfth Grade

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Background and Rationale

One of the prime goals of a course in economics at the secondary level is to develop within the student the ability to reason effectively. Thus the term "economic reasoning" has become a standard byword whenever the goals and objectives of a high school course in economics are discussed. All teachers pay homage to it, believe it to be a desirable goal, and work to develop it in their students. To develop economic reasoning skills in secondary students is a most challenging and rewarding endeavor.

Developing skills in economic reasoning is, in some ways, no different from fostering reasoning skills in any other discipline. Ideally it can best be accomplished in small and frequent group discussions and evaluated by the open-end essay question. In his discussions and examination paper, the student must make the transformation from facts, learned principles and theory to unique and unfamiliar situations introduced by the teacher or by other students. This helps the student to comprehend the overall structure and set the facts and principles into a relationship which gives them greater meaning and significance. As the student builds his confidence he is prone to make further evaluations and transfers on his own.

In practice, however, the ideal small group situation is rarely possible on any scale to be of value. School boards, faced with rising costs, are adding to the student-teacher ratio. In required courses of senior economics, class sizes of thirty-five students are the rule rather than the exception, and the situation will get worse before it gets better. Confronting this situation, teachers are increasingly inclined to confine instruction to traditional large group lecture techniques. The need of students for work in the higher levels of transformation, synthesis, evaluation and critical analysis are not forgotten. At best, a feeble effort is made, but in groups of thirty-five and forty the discussion usually degenerates into a dialogue between the same five or six top students in the class with the other thirty participating as observers.

Now, the observer role in these situations need not be an uninvolved or passive role and in any good discussion it is not. But to be sure it is not, the teacher must develop techniques to insure that these students do occasionally

become directly involved in some overt manner that can be evaluated. This will not only aid the student in his own intellectual growth but provide a means to evaluate the instructional methodology as well.

Frequent open-end essay type examinations offer some hope, but here the problem is again compounded by the large group situation. The time involved for grading is beyond the limits expected or possible for a secondary teacher with class loads of 130 to 180 students.

At times, under the pressure of increasing work loads, even the subjective features of the essay exam or question tend to become more objective. Many so-called "essay" examinations or questions require only the expression of the correct phrase or thought (usually the teacher's) to be scored high. Thus, evaluation tends to find itself bogged down at rather low levels involving true-false and multiple-choice questions concentrating on recall and limited application.

The problem for most secondary teachers confronted with these situations is that they not only are unable to evaluate the effectiveness of new teaching techniques (such as the Fenton Method); they have never been very sure of how well the traditional methods have served. *There exists a wide gap between the avowed goals of economic instruction and the means of evaluating the degree to which these very desirable ends have been achieved.*

What end is served when teachers, who pay lip-service to the need for developing higher levels of reasoning, will evaluate (grade) students on true-false and multiple-choice examinations emphasizing knowledge of specific terminology and recall?

In my project I have tried to construct an objective examination which would measure a student's achievement in the neglected higher areas of economic reasoning. Fortunately, these areas have been generally defined in Benjamin S. Bloom's *Taxonomy of Educational Objectives.* In the taxonomy, I make reference to application, analysis, synthesis, and if possible, evaluation. It may not be possible to do much with an objective examination in certain areas, but if these areas can serve as a goal it is hoped that the project, though it may fall somewhat short in special areas, will result in a testing instrument far better than anything available at present. Hopefully, this would be an examination that would offer *all students* a rigorous and challenging instrument *requiring* the application of learned principles and concepts. The objective nature of the examination would hold correction time to a minimum and thus provide a means to achieve, to some extent, the aforementioned goals.

The Examination

During the late summer of 1944, an Air Force cargo plane developed engine trouble and was forced down at sea. The three crewmen were able to launch their rubber raft and after drifting for three days, managed to land on a small barren atoll in the Carolinas group. Following are selected excerpts from the daily log of the ranking officer, Capt. Cooper, as he details some of the efforts of Lt. Davis, Sgt. Evans and himself to survive. Read them and answer the questions that follow.

Excerpts from the log of Capt. Robert Cooper, USAF, Rtd., quoted by permission:

August 7, 1944 — We landed about midday, wet, tired, but uninjured. Our spirits somewhat revived by the fire, we took stock of our situation. Our sup-

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plies were very low. The island is two or three feet above sea level, about one mile long and one-half mile across at its widest point. It is uninhabited and very barren. The prevailing winds have stocked an ample supply of driftwood and debris on the windward side. The leeside offers a small lagoon with a coral reef. Further exploration has confirmed our worst fear; there is no fresh water. The lack of water makes our situation very grim. Survival will require that we use what limited means and skills we possess to carve an existence out of this most barren lump of sand.

August 8 — The morning was spent tending the fire and otherwise aimlessly wandering about the island. At noon we ate the rest of our biscuits and each man drank 2 ounces of water. We talked over our situation. Survival, if possible, for any length of time, would depend upon some kind of organized activity—to maintain our sanity if for no other reason. Each man unloaded his pockets of any useful hardware. The collection included a few coins, a cigarette lighter, a pocket knife, a small adjustable wrench, file and screwdriver. Our survival kit provided a hunting knife, waterproofed matches, hand axe, some fishing gear, and first-aid kit. To this we added the clothes on our backs, our raft, water can, a couple of empty food cans, and whatever three pairs of hands and human ingenuity could muster. Lt. Davis set out to try his hand at fishing, an area in which he claimed some skill.

August 10 — Our water is gone. Davis has had no luck fishing. Evans and I trapped a couple of small crabs in the rocks, our first food in two days.

August 12 — We are dehydrating and growing weaker. Davis is suffering the worst of it, his fishing keeps him in the sun. He had some luck today, a 3-pounder. We ate everything. We hope for rain.

August 13 — Davis managed another fish today but he can't continue much longer. Evans and I found a fuel tank from some downed aircraft amid the beach debris. Evans wants to build an evaporator out of it—he has set to work dismantling the thing. This leaves me the job of cook, housekeeper and fire tender.

August 14 — Evans has convinced us his evaporator will work. We all help but we are weak and the work goes slowly. The two halves of the tank have been unbolted, separated, and scraped clean. The lower half has been suspended over a fire pit and filled with about 30 gallons of sea water. As the sea water boils, some of the steam is trapped in the upper half, which is suspended at about a 30-degree angle over the lower tank. The steam condenses on the underside of the upper half and runs to the lower end; there it drips, slowly but surely, into our water can, providing our first drink in five days, about an ounce each. We take heart at this.

August 16 — The evaporator works but we still have problems. Thirty or forty gallons of sea water must be kept at continuous boil to gain one pint of fresh water every 24 hours. This requires the continuous effort of all hands around the clock, gathering wood and hauling sea water. There is little time for rest, no time for fishing, our only source of food.

August 18 — The food situation is becoming acute. We have not eaten in 4 days. The evaporator provides 9 ounces of fresh water every 24 hours of continuous operation. We must release Davis to apply his fishing skills.

August 19 — Lt. Davis caught two fish today, not very big but very welcome, our first meal in five days. Sgt. Evans and myself were not able to keep up with the evaporator. Only 5 ounces of water—we tried very hard but we are just too weak. The food will help.

August 20 — The evaporator is a man-killer—just 5 ounces. Evans and I are exhausted. Davis caught another fish today and trapped a small crab in the rocks. We seem to be fighting a losing battle—growing weaker by the day. To get food we must give up water, to have enough water, we must give up food.

August 21 — Yesterday we decided to try and improve our evaporator. It will mean giving up a full day's production of water and food, maybe more if it doesn't work. Sgt. Evans and I worked out our plans very carefully—we are losing too much steam into the open air. Our plan calls for putting the two halves of the tank back together again, filling the tank through the normal fuel intake opening in the top half. As the water boils in the enclosed tank, pressure will build up and the steam will be forced through the ½ inch copper fuel line which is still attached to the upper half. To cool the steam and aid the condensation, the 6 foot copper line was coiled and embedded in wet sand with just the end protruding to drop into our water can. We carved a piece of coral to fit loosely in the fill-spout to act as a safety valve and release excess pressure. We worked by firelight far into the night.

August 22 — It works! It creaks, it sputters, it roars and groans but it works! We fired it up at first light and by noon we had collected almost a full quart, by dark we had almost a full gallon. We all worked all day bringing in wood, hauling water. We were so occupied that we failed to notice we were getting in each other's way. Our improved model does not require as much wood or sea water as before.

August 23 — Lt. Davis is our full time fisherman now. His skills are improving —3 big ones today. Evans is making out fine as our water tender, producing about 1½ gallons during a normal day. Each man drinks about a quart per day, we have enough left over for cooking and a reserve supply. My specialty seems to be cooking, storekeeper and camp improvement expert. Our lean-to now has a dry floor of palm boughs and driftwood. I have extended the sides, which provides greater protection from the wind.

August 24 — Lt. Davis caught 5 fish today and 6 crabs. We all knocked off early and had a feast. We talked of rescue. We decided we were strong enough now to post regular night lookouts and keep a continuous signal fire burning.

Capt. Cooper, Lt. Davis, and Sgt. Evans were rescued on September 27, 1945, when a passing PBY patrol plane spotted their signal fire. Except for some small loss of weight, they were all in excellent physical condition. They had continued to add to their store of goods, a crude but effective smoke house for preserving their fish, a four-wheel cart for hauling wood. They dug a sea water canal which brought water to the still-working evaporator for distillation and cooling. They had four weeks' supply of water stored away and about a three-week supply of smoked fish. They had woven blankets and straw hats out of palm leaves and were in the process of developing a net trap device to capture birds.

The following questions will attempt to evaluate your ability to apply some

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of the economic principles you have learned to the situations described. You may refer back to the above material.

1. Men everywhere, regardless of their systems or cultures, must confront the fundamental economic problem of scarcity. Which of the following dated excerpts from Cooper's log makes specific reference to this problem?
(1) Aug. 7 (2) Aug. 12 (3) Aug. 16 (4) Aug. 20 (5) Aug. 22

2. To relieve the fundamental problem requires that society combine the factors of production in such combinations that utility is created in goods and services. Listed below are some of the items from the castaways' stocktaking on August 8th. How many of these items would qualify as a factor of production?

fishing gear	seawater
driftwood	human ingenuity
hand axe	adjustable wrench
	matches

(1) three (2) four (3) five (4) six (5) all

3. A kind of elementary division or specialization of labor is experienced by the group when:
(1) on their first day, they wander aimlessly about the island; (2) by group or individual decision, Davis becomes the fisherman, Evans the watertender and Cooper the cook, firetender and housekeeper; (3) they all drop what they are doing and combine their efforts to produce evaporator No. 2; (4) their efforts to survive culminate in rescue; (5) none of these.

4. The technological improvement evidenced in evaporator No. 2 resulted in:
(1) greater overall economic growth; (2) more water per man; (3) a reductions of man-hours required to produce a given quantity of water; (4) increased productivity; (5) all of these.

5. The opportunity or alternative cost (real economic cost) of releasing Lt. Davis to resume his fishing activities on Aug. 19th was:
(1) his labor time; (2) two fish; (3) 4 ounces of fresh water; (4) none of these; (5) all of these.

6. One of the prime factors in the economic growth of any system is capital formation. Real capital formation requires that society reallocate resources away from consumption and into investment goods. What consumption did our group defer to build evaporator No. 2?
(1) none, since they are so poor they have nothing to defer; (2) the water they could have made from evaporator No. 1; (3) the water from evaporator No. 1 plus the possible fish from Lt. Davis; (4) none—consumption and investment have nothing to do with it; labor time is the only source of value.

7. The law of diminishing returns states that "if one or more factors of production are held constant, and one or more other factors are permitted to increase steadily, output will rise, but after a point, it will rise by diminishing amounts." From which of the following excerpts is reference made to the fact that the law of diminishing returns is functioning?
(1) Aug. 14 (2) Aug. 21 (3) Aug. 22 (4) Aug. 23 (5) none of the above

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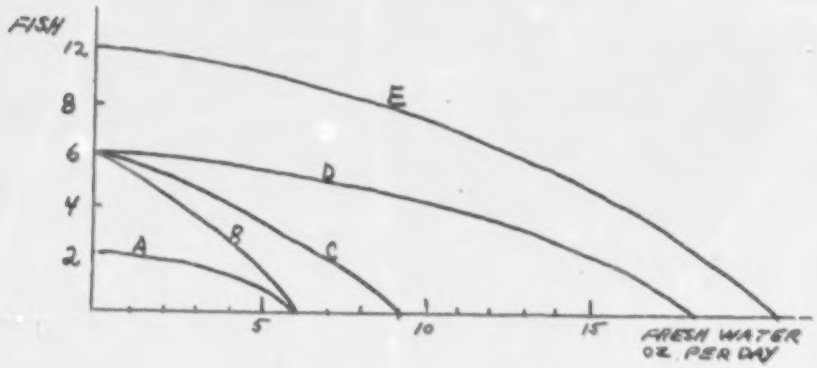
8. Let us assume that Capt. Cooper and Sgt. Evans could, *if they tried*, catch as much fish as Lt. Davis, and that the three of them would average two fish per day per man. Which line on the production possibilities curve below would best represent the situation before August 20th?

(1) A (2) B (3) C (4) D (5) E



9. Which line best represents the situation from August 23rd after the new improved evaporator started to work?

(1) A (2) B (3) C (4) D (5) E

10. The smokehouse, four-wheel cart, and their seawater canal represent examples of capital formation and economic growth. Which log entry refers to the primary event that made the creation of these items possible?

(1) Aug. 10 (2) Aug. 18 (3) Aug. 20 (4) Aug. 22 (5) Aug. 23

Results

The test was administered to about 150 students and revised several times. A final draft, administered to 29 students in June of 1970, did not appear to be too difficult. The mean number of correct responses was 6.9 — nearly 70 percent. Item number 8, calling for an interpretation of production possibilities curves, proved to be the hardest. It was missed by nearly 70 percent of the students. Question 5, on opportunity cost, was also missed by the majority (about 55 percent), as was question 7 on the law of diminishing returns. This project seems to show, however, that high school students *can* learn to apply analytical concepts and that tests *can* be devised to measure their ability to do so.

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Twelfth-Grade Economics for Slow Learners

Robert G. Janss
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Background

It is commonly believed that "basic students" (slow learners, as they are sometimes called) have limited powers of retention. While it is true that they have difficulty in comprehending abstract concepts, I believe that abstract ideas *can* be taught if the teacher first ensures that each component is understood and that these components in combination support the concept. Each element must be taught through the use of terms and examples which are primarily descriptive in character, and stated in a language level which the student understands. The fundamental goal of the curriculum that I developed, then, was to test the learning capabilities of the basic student and—hopefully—to disprove the notion that the basic student cannot retain what he has learned.

The school should strive toward a maximum development of the potential of each student. If this is achieved, the basic student will acquire a higher self-concept, become more independent, and make a greater contribution to the society in which he lives. The basic student is often one who has reading handicaps, a limited vocabulary, low test scores, limited powers of concentration, an inability to cope with complex problems, a lack of interest in school, and a low facility for expressing himself orally or in writing. He is interested in effects but not in causes. Opinions are accepted as being authoritative. These students need encouragement, reassurance and careful guidance. They should understand why it is important to study and that factual data are simply tools to be used in achieving social goals.

The Role of the Teacher

The teacher is the catalytic agent who changes the inert factors of course content and methods into active and vibrant educational instruments. Students are able to sense a teacher's insincerity, lack of confidence in the students' ability to learn, disinterest in their academic achievement, and similar negative attitudes. These tend to "rub off" on the students, making them apathetic, insecure, or even hostile. Too often, basic students expect to fail, accept underachievement as normal, and see themselves as being unable to learn. Teachers frequently accept this poor self-image and completely give up on the students. They try to entertain their pupils or give them "busy work" which has little relevance to the curriculum. This defeatist attitude is tragic, for basic students really *do* want to learn and really *can* learn if the teacher will only show enthusiasm and interest. By his statements, actions and manner, the teacher must assure them of his belief in them and of his desire to see them achieve their potential. In addition, the teacher must be resourceful in selecting interesting materials, employing appropriate analogies, and utilizing creative ideas.

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General Methods and Techniques

Good motivational techniques will change the student's attitude toward study from negative to positive. To remove those barriers which represent the student's aversion to formal education, the teacher should begin each lesson with a planned motivational device which will arouse interest and relate the topic to something that has meaning and importance to the teenager. Since economics affects us all, it should not be too difficult to find some way of showing a class that they *are* personally involved. As consumers (who often spend money they have earned themselves), the young people of today are certainly affected by inflation, for example.

Because slow learners have reading problems, assignments should be kept short and study guides should be prepared for them. Permit the student to use his own vernacular in formulating answers. Later, a higher level of vocabulary can be developed. Actively search for opportunities to offer praise, for the slow learner usually has a long history of lack of success and is thus sensitive to adverse criticism. Because of their poor command of language, they often say the opposite of what they mean. Thus, let them explain their statements and give them guidance in organizing their oral and written work.

Attention spans are limited, so no single type of activity should exceed thirty minutes. Plan a variety of activities, with enough flexibility so that discussions can be followed by explanation, enrichment or extracurricular activities. Use overhead projectors and other devices which help to illustrate and clarify.

Examples of Economics Lessons

If a textbook is to be used, it should be one which presents economic terms, theories and concepts in a simple manner. If the students prove to be capable of grasping more sophisticated material, the teacher can expand upon the text by introducing other readings or activities. Naturally, the student should be introduced to economics with such elementary topics as consumers and producers, and supply and demand.

To arouse student interest, use simple cases with which young people are apt to be familiar. Factors affecting the demand for skis or other sports equipment would be one example. High school students of modest academic ability can understand the effects of a shift in demand from laminated wooden skis to fiberglass skis and can identify the industries that would be directly or indirectly touched by this phenomenon. They can see how their choices of goods are influenced by competition among producers and how, in turn, the producers are affected by consumer demand. Once they have gotten this far, the concept of elasticity can be introduced and developed.

The fact that consumer demand depends upon utility is easily demonstrated, for one can point to dozens of products used daily by students. During classroom discussions it can be brought out that the teenager is willing to pay more for the items which give him the greater satisfaction. This can lead to an understanding of the law of diminishing marginal utility, for even the adolescent with the most voracious appetite will eventually reach that point where one more hamburger adds little or nothing to total satisfaction.

Once these simple principles are understood, the teacher can move to a more sophisticated analysis of the way in which prices are established in a

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free market. Some terms, such as "effective demand," may have to be defined again and the class should realize that producers want to sell their product at the highest possible price, while buyers hope to get the item in sufficient quantities at the lowest possible price. The students should know that the producer cannot raise his price beyond a certain point without losing customers. It is doubtful that the slow learner will comprehend supply and demand curves, but they *can* understand the underlying principles if they are explained in very simple and general terms. Realistic market situations can then be approached, with discussions of the effects of brand names on consumer choices, the influence of substitute products (such as butter vs. margarine), and demand elasticities. Many goods of interest to teenagers are subject to seasonal changes in price. A suit selling for $95 before Christmas may go on sale for $65 after the holidays, when demand has suddenly dropped. Thus, it is possible to show the student how he can apply economic principles to his own advantage.

From topics of immediate interest to the high school student one can advance to broader issues. Stressing the demand side of the market is not enough; factors affecting supply must also be taken into account. Fixed and variable costs of production can be taught to basic students if simple examples are used. For instance, one can start by analyzing the typical family's expenditures in terms of which are relatively fixed obligations and which can vary. This enables the student to acquire a better understanding of fixed and variable costs in business enterprises. The relationship between production costs and prices can then be established, and the students can see that producers must try to keep their costs low in order to meet the competition. Aggregative economics can also be included, at least to the point where the basic student understands GNP in a general way.

Conclusion

Evaluation is a problem in any educational system, but it is particularly difficult in dealing with slow learners. Short-answer and essay-type tests can be used, but they must be very carefully worded so that the student is being tested for his grasp of economics and not for his command of English. Early tests should be fairly easy so that the students can experience success and feel encouraged. The individual should be rated in terms of his own progress and how well he lives up to his potential, rather than how he compares with others in his class. Tests should be educational instruments which instruct and reward the student; they should not be used for punishment.

The approaches suggested in this report proved to be effective. Unannounced tests were given at various intervals, sometimes as long as 120 days after the material had been covered. The results indicated a retention capability of 85 to 90 percent. The effectiveness of this approach was affirmed by the Supervisor for Social Studies. Most important, however, is the fact that the students, through their comments, clearly indicated that they *do* want to learn and that they *can* learn.

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Economic Growth and Prosperity without Inflation

A Twelfth-Grade Unit

Robert G. Low
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Background

The experiences described in this report were used in three twelfth-grade American Government classes and covered a twelve-week period. Two of the classes were made up of general students; one was for those preparing for college. I felt that the economics component of the course should focus upon the major issues that would be receiving public attention during the period of the unit. I hoped to generate an interest in economics by concentrating upon controversial problems, and to get away from the practice of simply telling the students about economics. The program was designed, then, to encourage the students to ask questions, to look for solutions, and—most importantly—to relate and apply the classroom studies to real-life situations.

Past experience had taught me that most twelfth graders know very little about economics, so I decided to divide my program into two parts. The first would be devoted to teaching basic economic concepts in a rather formal manner, with the usual readings, work sheets, teacher "telling," and tests. As the students became more familiar with economics, however, they would be given more responsibility for the direction of the learning process.

Development Procedures

To establish a basic foundation in economics, I prepared a booklet titled *Economic Growth and Prosperity without Inflation*. *Time* and *Newsweek* gave me permission to use articles of theirs in the booklet. Some of the articles were used to contrast the economic problems of the first half of the 1960's with those of the second half, and to define such terms as fiscal and monetary policy. Drawing upon columns written by Milton Friedman, Paul Samuelson and Henry Wallich, I organized five units that I thought would represent the major economic issues of 1970. The five units were:

- The Politics of Economics
- The Lessons of the 1960's
- Weapons Against Inflation
- The Negative Income Tax
- The Balance of Payments

It was my hope that the debate between the columnists would stimulate interest and illustrate that economics is at times subjective and almost always controversial and exciting. I also wrote a study guide and test for each section of the booklet.

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The cover of my booklet was taken from the Los Angeles *Times* of February 7, 1946. It was simply a supermarket advertisement listing the prices of such items as soap, tea, milk, fruit, vegetables, canned foods, fish and meat. I asked the class to go to a local market and find the current prices. This exercise was used to bring about an understanding of inflation and to show some of the economic changes that have occurred over the last 24 years. Recent newspaper articles were used to show other dimensions of inflation, such as its impact on housing costs.

The class then read the booklet and answered a number of study questions, such as the following:

- In recent months why have sellers been reluctant to sell to FHA or VA borrowers?
- How will the change in interest rates influence the cost of living?
- How has the popular view of the Keynesian theory changed over the last thirty years?
- What do Keynes' critics see as the weaknesses in his thought?
- What is Milton Friedman's basic economic philosophy?
- What does Henry Wallich see as being wrong with the priority schedule that we have built into our economic system?
- According to Wallich, how can teenagers help fight inflation?
- What is the real cost of the current welfare system?
- How does Friedman answer the charge that the negative income tax would destroy the incentive to work?
- What has been the impact of the Common Market on American foreign trade?
- How might a devaluation of the French franc affect the American economy?
- How is domestic inflation related to our balance of payments situation?

Similar questions were used in periodic quizzes.*

Projects were then assigned in conjunction with textbook readings. Each student was asked to select a stock listed on the New York Stock Exchange and to write a paper on the corporation whose stock had been chosen. Among the factors considered by the students in selecting a company were trends in stock prices, the record of dividend payments, the history of the firm, the current market for its output, the relationship of demand for the corporation's product to business fluctations, its sales records, ratio of assets to liabilities, price-earnings ratios, relationship of the firm to others in the same industry, and its position in international trade. Records were kept of stock price changes, and through class discussions we attempted to analyze the trends.

Audio tapes were used to good advantage. A tape of the third Nixon-Kennedy debate of 1960 was played and each student was required to write a paper comparing and contrasting the economic views of the candidates. This assignment required the students to learn the meaning of such terms as fiscal policy and cheap money, and to assess the economic situation at the time the debates occurred. A tape made by Milton Friedman and Paul Samuelson in February of 1970 was also played. Again, the class was asked to write a paper

*The questions above were selected from a 28-page list of work-sheet and quiz questions submitted by Mr. Low.—*The Editor.*

contrasting and comparing the views and the forecasts of these leading economists. They were allowed to include in their reports materials from recent publications. Terms like "fine tuning," "inflationary spiral," "Euro-dollars," and "rolling readjustment" appeared in these papers, and were used properly and intelligently.

Culminating Activity

As the class concluded *Economic Growth and Prosperity without Inflation,* the following assignment was given:

ASSIGNMENT

The President of the United States wants to develop economic guidelines to help him meet the challenges of the 1970s. He has commissioned your committee to explore one of the following areas.

In preparing your report you are urged to survey the literature in the field, define the problem, pose possible solutions with their economic, political, and social costs, and then conclude with a draft of your recommendations. Each member of your committee, of course, will include with your report an annotated bibliography of the materials he has read. Do not let an "expert" do your thinking. Prior to drawing any conclusions, sample as many authorities as time allows.

BASIC AREAS:

1. How is national economic policy-making complicated by the realities of party politics?
2. What could have been done to improve the economic policies followed in the 1960s?
3. How can the United States reduce the inflationary pressures it now faces?
4. How can the United States make a fuller use of its human resources?
5. How can the United States improve its position as a world trader?
6. During the 1970s, how can the United States expand its rate of economic growth yet keep the level of inflation within acceptable bounds?
7. How can the United States improve the use of its natural resources?
8. How can the Keynesian theory be made to work?
9. How can monetary policy be used to promote prosperity without inflation?

* * *

The students formed five groups and selected topics that they found most interesting. Now they would have to read more widely, relate what they learned to a real problem, and use the democratic process in making group decisions. Each group selected a chairman, decided upon a division of the work, and spent about three weeks doing library research. Each student was required to develop an annotated bibliography on his topic. The committees met to synthesize and refine their findings and to prepare written reports summarizing the group concensus. In seminar fashion, each committee made an hour-long oral report to the class. Summaries of each report were distributed to the entire class.

The reports were quite impressive. One group, for example, prepared a

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paper in the form of a report to the President of the United States making suggestions on our foreign trade policy. The report discussed the balance of trade and payments, compared the productivity of other leading industrial nations with that of the United States, discussed economic growth rates, and described the problems of the underdeveloped nations. A paper on monetary policy included tabular material on postwar recessions, the federal budget record for the past five years, consumer price trends, the money supply, rates of change in industrial production, the merchandise trade balance, interest rates, and profits. There were graphs on housing construction and auto sales. All of these were related to inflation, government spending, taxation and Federal Reserve actions. Cropping up in other papers were discussions of the neo-Malthusian school, the impact of cuts in defense spending, the real costs of pollution, foreign aid policy, and many other current economic issues.

Evaluation had been an on-going process. The frequent quizzes, papers, oral reports and the annotated bibliographies served to keep me constantly informed of class and individual progress. The class, too, participated in the evaluation, for they rated the performance of each committee. My classes made far greater progress than similar classes in previous years. In terms of student interest, ability to handle economic concepts, and facility in working with real problems, the results of the project were most gratifying.

Cultural Economics

A Course for Eleventh and Twelfth Graders in the Southwest

Mrs. Sally Noe
Gallup High School, Gallup, New Mexico

Background

Cultural economics is a one-semester course designed for use in an area inhabited by people of Indian, Spanish, and Anglo-American backgrounds. The purpose is to teach about the economy of the region in relation to the national economic picture. It is an area of substandard incomes and three different cultural traditions, and the teacher must convey economics in the terms and experiences the student understands. Class groupings usually include the three major ethnic groups as well as all economic levels.

The Navajo culture is noncompetitive, and the typical student is not fully aware of the relationship between needs and wants, the economic development of the area, the profit motive, the concept of interdependence and the need for wise use of resources. Thus, these subjects in particular are stressed. For many of our students, English is a second language. Because of this, written tests must

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be used sparingly, and discussions rather than written summaries usually follow class activities. One major consideration of the instructor is to help the students develop pride in their historical backgrounds and see the relationship of those backgrounds to the economic development of the area.

Developmental Activities

A 37-page booklet entitled *Bi-Cultural Economics* was prepared for the students. Although it contains many of the same basic facts and concepts found in regular high school textbooks, it draws upon local material that has more meaning to our students. For instance, the fact that the supply of land is fixed is not treated in an abstract way, but is presented as follows:

> Will you be able to make a living doing the same thing your father does, or your grandfather did before him? Ask your father if it will be possible for you and your brothers and sisters to earn a living the same way he and his father have earned their living. The population, or number of people, in Navajoland is increasing. There is no longer enough land for all the young men to ranch and farm.

Since many Indian youngsters see competition as selfishness, the booklet takes care to point out that it is simply a method of struggling for economic survival. It explains that the young Navajo should understand the ways of the outside world, even if he disagrees with those ways, for many young people are planning to leave the Reservation and must be prepared for a different way of life. In discussing the factors of production, the booklet employs such examples as rugs and jewelry made by the Navajos as economic goods which—like all others—require productive inputs. Considerable emphasis is placed upon the fact that the individual is an important agent of production and that his skills and the demand for his services will help to determine his income.

Each chapter in the booklet contains a list of terms for discussion and definition, and a list of questions. These, too, are related, whenever possible, to the local economy. Some examples follow:

- In what way does the Reservation economy operate in the private sector? In the public sector?
- Why is rug-making on the Reservation perhaps facing bad times?

Classroom activities that enabled the students to do something else than simply read, write and discuss proved to be effective. One of these was a "silent auction." Several common items were placed on tables, and each student was allowed to submit "bids" on them. This was done by indicating the amount of the bid on a piece of paper and placing it in an envelope. The envelopes were opened by the instructor who then recorded the number and amounts bid for each item. The results led to fruitful discussions which helped to relate demand to utility. For example, a bar of soap received more and higher bids than an out-of-season tinsel item—a clear indication that utility affects demand and price.

Having learned that increases in demand can raise the market price, we then moved to a consideration of competition on the seller's side. A mimeographed "handout" was distributed. It was simply a drawing of one store selling a popular soft drink at the price of 45 cents. The students were asked to indicate ways in which the price might be reduced. They illustrated the effects of com-

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petition by drawing in other stores, each new competitor bringing the price down. Some even recognized that a certain amount of non-price competition might develop, as they depicted merchants offering free parking space or free chewing gum with each purchase.

Next, we examined the factors that enter into retail pricing. We had discovered that many students think that all of a merchant's revenues are profit. To dispel this notion, I had them develop a chart titled "From Shoe to You." Each pupil was expected to find out what costs were involved in the production of his own shoes. They identified such items as tools, leather, thread, shoe strings, heel taps, nails, dye, wages and salaries of shoe factory employees, taxes, advertising costs, salesmen's commissions, shipping costs and utilities used.

For a practical project, the students were asked to make weekend "pricing trips" to check on the prices of various items and to report their results. A chart was made which indicated the various prices in four different stores. This very dramatically revealed the value of comparative shopping, for the store which had the lowest price for dog food had the highest price for chicken. Many other differences of this nature were noted.

The tribal governments (Navajo and Zuni) often reinvest the profits from their crafts and other enterprises in order to increase job opportunities. Opportunities are limited, however, especially because of the ever-present problem of water. Electricity is a luxury in many areas, and natural gas has only recently become generally available in town. Possibilities for development, then, are strongly affected by the availability of resources, and there is a great need to promote conservation and the wise allocation of existing resources. Several weeks were spent in investigating this problem.

The students were permitted to choose one area of conservation for investigation. Most selected wildlife and reported their findings in notebooks. Some of these reports were read to the class by the instructor, but the authors were not identified. (In Navajo society one does not single out an individual for either praise or rebuke. This individualizes the person and makes him an object of ridicule. He is no longer one of "The People.") Two field trips were arranged so that the students could learn about the physical features of the region and see the relationship of local industries (such as a Navajo sawmill) to the geography and natural resources available. These experiences were also related to the material in the book.

To dramatize the functions of money, I had the students try to live for a week by using barter in a simulated situation. The results, of course, clearly indicated the superiority of money as a medium of exchange and a standard of value. (Student comments strongly supported this. For example, one student was heard to remark: "Here I am—records and no record player.") Next, the class was shown how they as consumers influence the businesses in the community. They kept records of their weekend spending and on Monday a list of the businesses they had patronized was placed on the chalkboard. An analysis was made of the list to show how such factors as convenience and need affected their choices. The businesses were also identified in terms of type—single ownership, partnership, or corporation. We saw how the different businesses serve the individual and the community, and made charts illustrating the advantages and the disadvantages of big business.

Following this, the students were asked to plan a weekend vacation with a

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total expenditure of $100. This activity had several purposes. First, they would be forced to distinguish between needs and wants because they would have to plan for such things as transportation costs, food and lodging before considering luxury purchases. Second, they would acquire an understanding of the opportunity cost principle, for it would become obvious that the *real cost* of purchasing a particular item would be the sacrifice of something else that might also have been desired. Third, the concept of interdependence would be reinforced as the students were told to list the people who would be involved in, or affected by, their decisions. Finally, this exercise would be related to the local economy in that it would show the importance of tourism to our area.

Conclusion

The problems of teaching in an area in which there are three ethnic groups with different levels of living, folkways and mores are tremendous. The standard procedures recommended by the methods text may not apply. For example, the pedagogical textbooks often suggest that students be singled out for individual commendation, as this should inspire them to even greater efforts in the future and give them a feeling of success and pride. To do this with Navajo children, however, would be a serious error. Yet, the teacher must find some way of showing that she *does* recognize their achievements and that she does *care* about them as individuals and as a people. Economics proved to be a suitable means of arousing and maintaining the interest of these youngsters and of focusing the curriculum on meaningful problems.

For instance, our community received nation-wide publicity because of a legal suit involving city facilities for intoxicated persons. Recent news magazines and television specials had publicized some of the problems of the Indian in the United States. With a collection of newspaper clippings and the first-hand knowledge of the students, small groups met in the classroom to discuss this problem. The discussions were heated, but it was brought out that the problem is one that affects others as well as the Indians, and that economic factors are important in understanding the severity of the problem among the Indians. A few basic economic principles, then, greatly enriched our curriculum and enabled us to approach individual, group and regional problems with greater understanding.

APPENDIX TO CHAPTER 4

Good Ideas in Brief: High School Level

MRS. EARLENE L. HERMAN of *Northwest Classen High School* in *Oklahoma City, Oklahoma,* had the students in two of her classes set up "mini-corporations." Junior Achievement methods and materials were revised and adapted to fit the needs of the classes. The students played a major role in planning and carrying out the project: they sold stock in their companies, purchased resources, and paid wages, salaries and interest, thus learning about the factors of production and their costs. Financial reports were prepared for the shareholders. Each firm made a profit and paid dividends. Since they were produc-

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ing different products, the two companies were not competing in the same market in the classical sense. Nevertheless, a friendly rivalry developed as the two classes sought to outdo each other in the efficiency of their operations and in earning profits. Interesting differences emerged, as one firm tended to act more conservatively than the other. (In this case, the business which took greater risks was able to pay higher dividends.) Through this project the students were motivated to learn about such economic concepts as division of labor, the circular flow, the relationship between productivity and income, the free enterprise system, factor costs, and interdependence. There was community involvement through extensive use of resource persons. Government's role in the economy was included in that the students had to obtain "charters" and pay corporate taxes. (Actually, the "taxes" were contributed for more economic education materials.) The students found the experience so enjoyable that they presented Mrs. Herman with a proclamation of appreciation on the last day of the semester.

Mrs. Earlene Herman and student examine a bulletin board display of important economic terms and concepts.

THOMAS H. ELDER of *Ashland High School, Ashland, Ohio*, suggests that many economic concepts can be included in vocational guidance lessons. As students discuss their career choices they can take supply and demand factors into account for the occupations in which they are interested. Studies can be made of general economic trends and how business fluctuations might affect the demand for workers in the student's chosen field. Wages should be studied from several points of view—how wages are determined in various occupations, the

relationship between productivity and wages, and the portion of national income accounted for by wages and salaries. Employment projections must be examined, so that the students realize that by 1975 white-collar jobs will make up about 48 percent of the total, while blue-collar employment will account for only 34 percent, services 14 percent, and farm jobs four percent. They should know what is meant by "investment in human capital" and have a realistic understanding of the education and training required in various occupations.

MRS. CAROL L. GILMORE of the *Northfield School* in *East Northfield, Massachusetts*, had her economics students make detailed reports on business firms of their own choosing. The reports included information on the history of the firm, its present size and location, its labor force and labor relations, the goods and services produced, the extent to which the company is operating at capacity, relations with government, the market for its products, the competitive situation in the industry, advertising policy and costs, and stock ownership. The students were also asked to evaluate the firm from several points of view. ("Is it public-service oriented?" "Do you think this is a good company to invest in? Why? Why not?" "What do you foresee as the future for the firm?") Many teachers have their classes do projects of this type, but Mrs. Gilmore added a new dimension by having the students send copies of their reports to the firms they selected. This had the effect of inducing them to exercise great care in being accurate, neat and well-organized. Since several firms expressed interest in these reports, the students felt that they were doing something important.

KRASTYU KRASTEFF of *Hoxton Watkins High School* in *St. Louis, Missouri*, has found that a 19-lesson unit in economics can be taught effectively in a 12th-grade honors class in history. After reading such books as Richard T. Gill's *Evolution of Modern Economics*, discussing them in class, and making individual and group reports, his students were able to answer such examination questions as the following:

1. You are a federal government economist. Your task is to prepare a position paper to be presented to the National Council on Urban Affairs on the following issues: "Simultaneous existence and continuation of recession and inflation, of employment and unemployment in the economy."

a) What sources, indexes, etc., would you consult in order to obtain needed and reliable data?

b) What hypotheses would you develop in your search for an answer to these sticky economic problems in terms of origins and possible cures?

2. "Economics has travelled a long and strenuous road from the times of Adam Smith to the times of Arthur F. Burns." Do you think it has emerged as a solid social science discipline capable of handling the complex economic problems of the age of automation and rising expectations? What are its chief strengths and weaknesses?

DENNIS W. CAMBIER of *Lincoln High School* in *Midland, Pennsylvania*, has developed a one-semester course in which an analysis of the ideas of leading economists, past and present, is the focal point. Mr. Cambier condensed and simplified the writings of Adam Smith, Thomas Malthus, Karl Marx, John

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Stuart Mill, J. M. Keynes, Milton Friedman, and Walter Heller for a mimeographed booklet of readings for his twelfth-grade class. Guide questions were prepared for each of the readings, and the students worked both independently and in small groups to analyze them. Class discussions were then based upon the questions, with students often leading the discussions. The class also read, analyzed, and discussed current articles on economic issues. Several students made attractive posters illustrating various economic concepts. This activity appealed to the below-average student in particular. The posters were displayed and referred to during class discussions.

Posters made by the twelfth-grade students of Mr. Dennis W. Cambier at Lincoln High School in Midland, Pennsylvania.

CYRUS L. RICHARDSON of *Larkin High School* in *Elgin, Illinois*, suggests that the way to a student's mind may be through his taste buds. Confronted with the difficult problem of teaching economics to twelfth graders of low academic ability, Mr. Richardson held a "tasting contest" in his classroom. The students were sent to stores to buy different brands of gelatin. Records were kept of the brands and their various costs. A limited sum of money was provided from school funds, so the first economic problem faced by the student was the problem of choosing among alternatives. Finding that prices differed (even for the same brand in different stores), the class discussed the topic of competition and its effect upon prices. Asked to choose the "best" brands, students usually selected the most expensive. The "tasting contest" was then held to see if students could correctly identify the brands when the labels had been removed. The results were tallied, and it was found that most students could identify the well-known brand. The prices were then compared, and it was noted that the well-known brand cost 13¢ while another cost 8¢. At first the students felt that

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the difference of 5¢ was insignificant, but then the *percentage* difference was computed, and the total annual savings that would result from using the cheaper brand were identified. This engendered a discussion of utility, for there was a question of whether the qualitative difference was worth the higher price. The opportunity cost principle was introduced, for the students were asked to indicate what one could buy with the money saved in a year by using the lower-cost item. Once these economic concepts had been introduced through the "tasting contest," it was a fairly simple matter to apply them to other situations.

MARTIN LAPIDESE of *East New York Vocational-Technical High School, Brooklyn, New York*, develops his own transparencies and worksheets in a twelfth-grade economics course for slow learners. The worksheets contain information found in the regular textbook but it is expressed in simpler terms, while the transparencies illustrate the concepts being studied. For example, one transparency traces the development of a chair from the raw lumber stage to the finished product. The transparency shows how each factor of production (the natural resource, labor and capital equipment) enters into the manufacturing process and adds to the value (and the price) of the chair. One of the most unusual activities is a study of advertisements from Russian newspapers. This is used to lead to an examination of the Soviet economy and to show how economic systems adjust to varying conditions and needs.

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CHAPTER FIVE

College Level

An Experiment in a Multimedia Systems Approach to the Basic Economics Course

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Introduction

This is a report on an experiment in the teaching of sophomore principles of economics, using programmed materials, closed circuit TV lectures, and computer analysis of examination results. During the 1968-69 academic year, students were assigned a section of a programmed text, examined on the material, and then exposed to TV lectures on the same concepts. In addition to the bi-weekly TV lectures, lab sessions were held once a week. A traditional textbook and study guide were also required.

During the 1969-70 year, the same general approach was used, but with a different emphasis. The term "television course" was replaced by "television-assisted instruction." Whereas in the first year the students could sign up for lectures and labs separately, during the second year we abolished separate labs, and thus the same graduate assistant was present for both lectures and labs. Instead of a rigid two lectures and one lab per week, all the meetings during a given week could be made up of lectures and there could be "back-to-back" lab sessions. The aim was to give the graduate assistant a more prominent role. He would become *the* teacher, with the TV lectures regarded simply as aids. It was hoped that this would help to "personalize" the course.

Method of Evaluation

Opinionnaires in essay form were given at mid-term, asking how the graduate assistants were conducting the sessions. These were for the private use of the graduate assistants and were not given to the course director. At the end of each semester an objective opinionnaire was given along with the final examination. Students were not required to complete this opinionnaire, but there was an overall response rate of 79.8 percent after the first semester and 62.3 percent after the second. The section with the highest response rate was second highest in achievement on the final exam and in the rating given to the graduate assistant. The section with the lowest response rate had the poorest showing on the exam and gave their graduate assistant the lowest rating. In the rating system for the opinionnaire, the number 1 was seen as an "A," 2 as a "B," and

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so on. For example, from 1.00 to 1.79 was "A," 1.80 to 2.04 was "B+," 2.05 to 2.34 was "B," and so on, with 4.20 to 5.00 rating an "F."

In evaluating the graduate assistants, the students were asked: "If you should take another semester of economics in a TV section, would you want the same graduate assistant? (1) Very much so. (2) Prefer him or her. (3) Indifferent. (4) Prefer another. (5) Would avoid him or her." After the first semester of the 1968-69 year, the overall result was 2.54 ("B –"). After the second semester of the 1969-70 year, the rating improved to 2.14 ("B"). Although it cannot be proven conclusively, it is probable that the change in the graduate assistant's image (from "assistant" to "instructor," in effect) accounted for this.

Students were also asked to evaluate the course as a whole. Here there was a decline from a "B –" after the first semester of 1968-69 to a "C –" after the first semester of 1969-70. The use of TV became less popular, and where graduate assistants were seen as "good," the TV lectures were downgraded in comparison with them; where the assistants were given inferior ratings, there was a more positive evaluation of the TV lectures, although the overall course evaluation was negative. When asked to rate their preference for the TV lecture system as compared with having a graduate assistant as sole instructor, 67 percent said that they would "slightly prefer" or "much prefer" TV. Thus, even though the students did not like TV, they were *not* inclined to favor a situation in which the graduate assistant became the sole teacher.

Course Effectiveness

In 1968-69, the Test of Understanding in College Economics (TUCE) was used as a final semester examination in both semesters. Part I was used only in the first semester and Part II only in the second. The test had also been used in 1967-68 when Oklahoma State University was cooperating with the test developers in providing norming data. Comparisons were difficult because of a change in textbooks, reversing the macro-micro sequence. Pre- and post-test data could be obtained in 1969-70, however. The pre-test mean for the mostly macro group, using Part I, Form A, of TUCE was 12.13. The post-test mean was 22.31. For the mostly micro group, using Part II, Form A for a pre-test, the mean was 12.44. The post-test mean was 20.79. These results were gratifying.

Student Attitudes towards Means of Instruction

There is no doubt that students did not like TV instruction in economics. In an opinionnaire given in 1970, they were asked to compare their preferences for the TV course with three alternatives as follows:

1. TV with a class size of 40-50, *or* live lectures by a senior professor with 350-500 students twice a week and a discussion session with a graduate assistant once a week (20-25 students).
2. TV, *or* a senior faculty member lecturing live three times a week to groups of 120-145 students.
3. TV, *or* a graduate assistant lecturing live in a classroom with 60-75 students three times a week.

For item 1, 46 percent expressed a preference for TV; for item 2, 44 percent preferred TV; for item 3, 67 percent opted for TV. At the opposite pole, in

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item 1, 41 percent preferred the alternative to TV; in item 2, 41 percent chose the alternative; and in item 3, 25 percent selected the alternative. Thus, the use of graduate assistants was less popular than other alternatives, while there was substantial support for having lectures by a senior faculty member. Pre-registration experience, when conventional sections were offered as well as the TV, supports our conclusion that students would prefer to be taught by a senior faculty member in a class of 50 or fewer people.

The students gave a high rating to the programmed text. In fact, 75 percent rated the programmed text "1" on a scale in which "1" meant "most helpful" and "4" meant "least helpful." Only 12 percent saw the graduate assistants as being most helpful; seven percent found TV to be most helpful; and six percent rated the conventional textbook most helpful. That is, of the four elements making up the course, the programmed text scored far higher than graduate assistants, TV, and the regular text in terms of being helpful to the students.

Several other courses had been presented through TV at the University. Students who had taken some of these courses were asked to compare them with the economics TV class. Forty percent rated the economics TV lectures as being better. (Twenty-three percent said "much better"; 17 percent said "slightly better.")

Student Attitude towards Economics

Forty percent of the students considered economics to be very important, while five percent said it is not really important and another five percent found it to be a waste of time. Only 12 percent found it very difficult; 53 percent thought it hard but not too difficult; 20 percent thought it was easier than most other courses; and five percent considered it a "snap." Although only five percent plan to major in economics, 28 percent said they will take many more economics courses (possibly equivalent to a minor), and 13 percent plan to take one or two more courses. Thirty-nine percent said they will take more economics only if required, and 15 percent will avoid economics in the future. Thus, nearly half the students were not so discouraged by the TV course as to avoid economics in the future.

Conclusions

Television instruction was not popular, but other elements of the "package" were well-received—the programmed text in particular. The new image created for the teaching assistant helped to improve student ratings of these instructors, but not enough to convince students they should become the *sole* instructors. If traditional lectures are unpopular, the added impersonality of TV lectures downgrades lecturing even further. Television might be used as an aid wherein the instructor could control the TV playback individually in each classroom and the student could repeat the TV tapes outside of class on an individual basis. Wherever possible, provision should be made for the student to have an alternative instructional "package" to choose in place of TV instruction.

Active Programming and Computer Simulations by Intermediate Macroeconomic Theory Students

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To introduce my students to a problem-solving approach widely used in economics and other social science disciplines, I had them actively program and simulate with dynamic macroeconomic models. The idea was to have the students use the computer as an economist uses it, and thus to acquire a lasting understanding of this technique of analysis. Other objectives were to familiarize the students with some particular macroeconomic models, to make a transition from static to dynamic modeling, and to move from pedagogical models to econometric models.

My own *Computer Problem Kit for Economics** was used as the central core for the course, although the problems had been designed primarily for supplementary work. The students were also assigned readings from an introductory economics text and from a graduate text on macroeconomic theory and stabilization policy. The models in the kit provided a transition between the two texts by giving the student some concrete models to work with and by moving from static to dynamic models. The course outline was as follows:

Macroeconomic Theory and Stabilization Policy

Course Outline

A. *Introduction*
   1. Conflicting recommendations by economists for stabilization policy in 1970.
   2. Macroeconomic theory: What is it? What can we learn about it in one semester? How well do economists understand macroeconomic problems?

B. *The Measurement of Economic Activity*
   1. Major macroeconomic variables that we would like to measure: general welfare, aggregate income, overall employment, general price level and the balance of international payments.
   2. Definitions of the above variables for the practical purpose of measuring them. The limitations of the measured variables in indicating the conceptualized variables.

C. *A Static Model of Economic Behavior*
   1. Simple Keynesian model of income determination.

*Published by Macmillan Company, 1969.

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2. Programming as an aid to understanding how a system works and how more complex models can be handled.
3. A simple Keynesian model of fiscal policy.
4. Political and institutional factors in fiscal policy.

D. *Dynamic Models of Economic Behavior*
1. A simple model with an investment accelerator equation.
2. Tools of dynamic macroeconomic theory.
3. Models of dynamic economic behavior and their interpretation.
4. The relationship between static and dynamic macroeconomic theory.

E. *The LM-IS Model*
1. How the Federal Reserve controls the money supply and monetary policy.
2. Bringing the monetary sector into a static model.
3. Stability of the LM and IS curves if prices and wages are flexible and if the intersection of the LM and IS curves is not at full employment.
4. Keynes and his predecessors: A reinterpretation.
5. An attempt to convert the LM-IS model to a dynamic model.

F. *International Economic Relations*
1. Bringing the rest of the world into our models.
2. Macroeconomic theory in an international context.

G. *Economic Policy: Controlled and Uncontrolled Variables*
1. The theory of stabilization policy.
2. Monetary policy.
3. Fiscal policy.
4. Use of an econometric model for forecasting: Use of a specific econometric model.

H. *Methodology and Ideology: Are They Inseparable?*
1. Terms of reference.
2. Empirical studies.
3. The scientific method and economic research.

I. *Where We Are and Where We Are Going*
1. Culbertson's conclusions, Chapter 22, pp. 527-539, of John M. Culbertson, *Macroeconomic Theory and Stabilization Policy*, (New York: McGraw-Hill Book Co., 1968.)
2. Walter W. Heller, *New Dimensions of Political Economy*, Chapter 1, pp. 1-57.
3. Econometric forecasting—The current record.
4. What should our fiscal and monetary policy be for 1970-71? Current readings.

The outline above is the same as that given to the students, except that reading assignments were included with each topic. For instance, with topic B-2, the class was assigned Chapter 12 in Culbertson's *Macroeconomic Theory and Stabilization Policy*, Chapter 10 in Samuelson's *Economics*, Berle's "What GNP Doesn't Tell Us" in the *Saturday Review* of August 1968, and portions of the *Survey of Current Business*, July 1969. Two days were spent in discussing econometric forecasts and simulations, using models from *Econometric Gaming: A Kit for Computer Analysis of Macroeconomic Models* by Klein and Evans.

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First, the students were asked to read the first 27 pages of my booklet and to do the self-teaching programming on their own. This introduced them to the role of the computer in economic analysis, and gave them a simple model of the United States economy in which it was assumed that $NNP = C + I$ in a static version and that $NNP_t = C_t + I_t$ (the subscript t denoting the time period) in a dynamic version. The rudiments of programming were included, followed by an explanation of the computer program for solving a simple economic model. The problem situations included such questions as:

- What would you predict as the change in NNP using the multiplier theory?
- If you produced goods which were used in constructing factories what would your pattern of sales demand be according to the computer output?
- How would you modify your program to determine what would happen to NNP if I remained at 60 in all periods but the consumption schedule shifted permanently upwards by 10 billion dollars in period 1?

The students received instructions in using the time-sharing system. Problems were assigned a week in advance, and class discussions were held on the problems when the work had been collected. Copies were made of student programs that were particularly good so that they could be shared with the class.

Students who did well on the programs also performed well in the course, as might be expected. In response to an anonymous questionnaire, the students indicated that the experience was enjoyable. The biggest payoff, however, was the insight into the use of economics models that students gained in the process of doing the problems and in simulating their own models.*

*Limitations of space prevent a detailed account of this project. Those interested in using the techniques employed by Professor Treyz may obtain his full report from the Kazanjian Materials Library, Ohio University, Athens, Ohio.

A Summary Evaluation of an Experienced Teacher Fellowship Program in Economic Education

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The Experienced Teacher Fellowship Program in Economic Education and Related Social Sciences at Ohio University, 1969-70 (hereafter designated as the ExTFP), was a full-year program for experienced teachers that commenced in June 1969 and terminated in June 1970. The ExTFP was sponsored by the U.S. Office of Education (USOE), under the Education Professions Develop-

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ment Act (EPDA), and was administered through the Department of Economic Education, College of Business Administration, Ohio University. The Ohio Council on Economic Education and the Joint Council on Economic Education assisted with certain coordination efforts. The authors of this report served respectively as the Director and Associate Director of the program.

The description of the ExTFP which follows is organized around the program's rationale, antecedents, transactions and outcomes; it may serve as a guide to economic education program directors.

Rationale

USOE Objectives. To improve the quality of education in the nation's elementary and secondary schools, Experienced Teacher Fellowship Programs were instituted to (*1*) provide full-time graduate education and specially planned courses of study for experienced teachers and (*2*) create an increased concern for the training of teachers in colleges and universities throughout the nation. By 1969 the USOE began to encourage the participation of experienced teachers from schools in urban ghetto areas and rural poverty regions.

Although the USOE conception of EPDA programming was generally broad and inclusive, covering a wide range of subject matter, it was quite specifically assumed that funded programs would (*1*) create better cooperation between subject matter and teacher education specialists, (*2*) design specific courses for a rather homogeneous group of students, and (*3*) encourage better cooperation between institutions of higher education and local school districts and systems.

In promoting greater cooperation between subject matter and teacher education specialists, the USOE tried to encourage the institutionalization of special programs for teachers with the ultimate goal of creating a cadre of college professors who would have an impact upon teacher education, and, through the multiplier effect, upon elementary and secondary schools.

A second expectation of the USOE was that there should be college courses especially designed for school teachers and that they should be distinctive. The USOE encouraged *en bloc* procedures where courses would be tailor-made for students of a defined background and preparation. Under this procedure it was hoped that college instructors would direct their attention specifically to the needs of the classroom teacher and not assume that the teacher would or could, by himself, transfer knowledge into viable curriculum, lesson plans, or classroom procedures.

Critical of regular graduate school programs that left the individual classroom teacher to the mercy of the "catalog's cafeteria-like offerings," the USOE encouraged *en bloc* organization to provide greater visibility of the program on the campus and a greater opportunity for program participants to profit from interaction with their peers as well as the more formal lessons of their instructors.

A final recommendation of the USOE was to encourage greater cooperation between institutions of higher learning and local school districts and systems. The USOE recommended that program participants be selected by their home educational system and that the local school system guarantee any applicants a position upon completion of the program. Furthermore, the USOE encouraged program administrators to conduct practicum experiences involving the participants in the translation of content and experimental designs into actual classroom teaching.

The ExTFP Objectives. Reflecting the general guidelines and emphasis of the USOE, the proposal submitted to the USOE identified four major objectives. The first of these was to provide a national cadre of leaders in economic education who would be especially prepared to become directors of Councils and Centers of Economic Education. Specifically, the proposal requested support for post-masters participants who, upon completion of their degree programs, would be prepared as specialists in curriculum development and instructional techniques as related to economic education. These participants would pursue the Ohio University Ph.D. degree in Economic Education.

The second broad objective requested support for elementary and secondary teachers, department chairmen and supervisors, employed in rural and urban poverty areas. This approach was used to provide elementary and secondary school systems with specialists in economic education prepared to implement imaginative and effective programs of instruction, research, curriculum development and community service.

The third objective was to expand liaison efforts for program enrichment between Ohio University and local school systems in cooperation with the Ohio Council on Economic Education, state departments of education, and professional agencies and associations. It was hoped through this objective to strengthen an "external image" that would encourage and improve community-school relations, as well as encourage the expansion of economic education activities on other college and university campuses.

The fourth objective was to develop an "internal image" to foster similar university-school cooperation and emulation among other departments and divisions of the University. That is, it was proposed that the ExTFP would help both; to institutionalize economic education at Ohio University as well as promote teacher education programs with a greater concern and interest for the teaching process.

The broad objectives, it was anticipated, would be achieved through more specific objectives and methods structured to provide (*1*) teachers of common educational backgrounds and academic interests with a rigorous and systematic program of study in economic education, (*2*) a substantive background in economics with special emphasis on the analytical method of the economist as a social scientist, (*3*) assistance to the participants in translating economics and scientific methods of inquiry into viable curricula suited to elementary and secondary social science courses, and (*4*) acquaintance with the innovative and challenging materials developed through curriculum research and development projects.

Antecedents

Special Features. The existence of the Department of Economic Education is unique to Ohio University. The Department, located in the College of Business Administration, is concerned primarily with teacher education and the translation of economic content into curriculum appropriate to elementary and secondary students. This objective is achieved through research of current trends in economics and in education and through special services to elementary and secondary schools, including professional consultants, in-service courses and summer institutes, the Developmental Economic Education Program (DEEP) and Systematic Economic Education Development (SEED) projects, and other activities conducted in cooperation with the Ohio Council on Eco-

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nomic Education and the Joint Council on Economic Education. Through cooperation with other departments at Ohio University, especially the Department of Economics and the Department of Secondary Education in the College of Education, the Department of Economic Education maintains an intercollegiate, interdepartmental, and interdisciplinary approach in teacher education and curriculum development.

The fact that the Department exists, that it administers the M.A. in Economic Education, and offers a Ph.D. in Economic Education in cooperation with the Department of Secondary Education, is indicative of a recognition of the importance of economic education at Ohio University.

A special feature of the ExTFP design was a request for support for two specific types of participants including (*1*) post-M.A. Fellows who would pursue the Ph.D. program and (*2*) M.A. candidates for the M.A. in Economic Education.

A second major feature was a two-quarter practicum experience involving seven teams of three Fellows each. The team leader in each instance was a Ph.D. candidate, while the other two members of the team were M.A. candidates.

A third feature was the inclusion of special group process experiences that were codirected by faculty members from the Department of Guidance, Counseling, and Student Personnel of the College of Education. The Fellows attended a special non-credit, one-week group process session between the Summer and Fall quarters and met later, for the most part individually, with the codirectors for personal and individual consulting.

These features are described in more detail under Transactions.

Curriculum Content. Fellows in the M.A. portion of the program followed a schedule whereby they could obtain their degree objective during the one year in the program. The post-M.A. Fellows were not expected to complete all of the requirements for the Ph.D. degree, but did pursue individual programs that enabled them to complete the major portion of the course work during the year.

The M.A. program was organized specifically for experienced teachers with a baccalaureate degree and a standard teaching certificate, and who could meet the normal admission requirements for the Graduate College of Ohio University. Largely because of the practicum, the Fellows were required to take more than the 48-hour minimum course work in economics, education, and economic education required for the M.A. Because of the nature of the ExTFP, prerequisites in economics were *not* required for admission into the degree program of the ExTFP. Further, *en bloc* programming was used for several of the required courses.

An outline of the M.A. curriculum for the ExTFP as it appeared in the program brochure follows:

Course Title	*Course Description*	*Quarter Credits*
	Summer Quarter	
Finance 551	Monetary Policy	3
Econ. Educ. 546	Economics in the Curriculum	3
Econ. Educ. 549	Economic Education Programs	3
Educ. SE 555	Adv. Principles of Teaching	3

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Course Title	*Course Description*	*Quarter Credits*
	Inter-Quarter	
	Special Non-Credit Group Process Experience	
	Fall Quarter	
Educ. RS 521	Educational Statistics	4
Econ. 515	Economic History of the United States	4
Econ. Educ. 650	Economic Education Research	3
Econ. Educ. 690	Studies in Economic Education: Practicum	4
	Winter Quarter	
Econ. 503	Advanced Microeconomic Theory	4
Econ. 575	Economics of Poverty	4
Econ. Educ. 651	Economic Education Seminar	3
Econ. Educ. 690	Studies in Economic Education: Practicum	4
	Spring Quarter	
Econ. 504	Advanced Microeconomic Theory	4
Econ. 576	Economics of Human Resources	4
Econ. Educ. 691	Master's Seminar: Colloquium Paper	3
	Elective in Economics*	4

Recognizing that many of the M.A. Fellows were deficient in their formal preparation in economics, and that the degree requirement consisted of a minimum of 27 quarter credits in economics, one course of each term during the summer session was devoted particularly to the introduction of basic economic ideas, concepts and generalizations which would be studied more intensively in the various economics courses scheduled for the academic year.

The introductory course in education was an *on hire* course scheduled for both M.A. and Ph.D. candidates and taught by a veteran social science teacher-educator specialist from the College of Education. This course, taught during the second four-week term of the summer, was included in the schedule to serve the same purpose in education that the two introductory courses in economics were directed to in that discipline, namely, to make the Fellows familiar with contemporary learning theories, the taxonomies of educational objectives, and new developments in elementary and secondary education generally.

Plans for the Ph.D. program were initially prepared by the Chairmen of the Departments of Economic Education and Secondary Education. A proposal for this degree submitted to the Board of Regents was approved in March 1968. In general, students in this degree program must complete a minimum of 65

*In general, participants in the program will be encouraged to select from among the following courses:

Econ. 505	History of Economic Thought	4
Econ. 525	Comparative Economic Systems	4
Econ. 528	Regional Analysis	4
Econ. 535	Introduction to Econometrics	5
Econ. 563	Economics of Government	4
Econ. 655	Seminar in Monetary Theory	4

quarter credits each in (*1*) education and (*2*) economics and economic education. In the education component, a candidate usually concentrates his course work in the areas of (*1*) statistics, (*2*) research and design, and (*3*) curriculum development. In the economics and economic education component, candidates are expected to demonstrate competency of basic economic theory, but in broad coverage rather than content specialization and coupled with course work in economic education.

Besides the required course work, candidates for the Ph.D. degree are expected to pass (*1*) a statistics proficiency test and (*2*) a standardized foreign language proficiency test. Additionally, degree candidates are required to (*1*) complete a practicum experience, (*2*) file a record of scores obtained on the Graduate Record Examination (GRE), and satisfactorily complete an advanced writing test, and (*3*) complete a dissertation.

Student Characteristics. To be eligible for the Ph.D. portion of the program, applicants were expected to hold an M.A. in economics or education with evidence of solid academic records and good letters of recommendation.

As with the Ph.D. applicants, the M.A. applicants were selected on a national basis. However, selection preference was given to educational personnel in rural poverty regions, such as Appalachia, and inner-city poverty areas. An M.A. applicant was considered eligible for the program if he held a baccalaureate degree from an accredited institution with a minimum of 2.5 grade average (where A = 4.0) and a standard teaching certificate. Preference was given to individuals with three or more years of teaching experience.

Of the 21 Fellows who made up the final roster, 19 were male and two female. The mean age of all participants was 32.95 years with a range of 26-52. The mean age of the Ph.D. Fellows was 32.42 as compared with the M.A. age of 36.21. The mean number of years in education was 9.7, indicating an experienced group of teachers.

As undergraduates, two of the Fellows had majored in economics while 14 had majored in history or social sciences other than economics. Four participants had majored in education and the remaining one in physical education. Prior to entry into the program, four of the Fellows had had no formal course work in economics, either at the undergraduate or graduate level; seven of the Fellows had taken no college course work in economics beyond the basic introductory or principles level. Similarly, nine of the Fellows had taken no course work in higher mathematics at the undergraduate or graduate level; 11 of the Fellows had taken at least a course in basic algebra but only one student had taken courses in calculus.

In a program with the preponderance of course work in economics at the graduate level, it is not surprising that the economics instructors found the level of comprehension among the Fellows to be deficient. The failure to grasp meanings and to see relationships, especially early in the program, and usually early in the various courses, was undoubtedly due to the lack of preparation in economics and mathematics.

Transactions

Formal Course Requirements. Course requirements consisted of course work in economics, education, and economic education with a primary emphasis on the translation of economics into viable curricula. The content of the

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courses in economics was directed toward an identification and analysis of basic economic ideas, concepts and generalizations. These courses, which were especially rigorous given the deficiencies in the background of many of the Fellows, were considered important in preparing the Fellows for the curriculum application covered in the economic education courses.

The courses in education for the M.A. Fellows included an advanced principles course directed toward a study of contemporary educational theory and recent developments in curriculum. The educational statistics course was looked upon as complementary to the economics courses, as well as a course with direct implications for teachers.

The courses in economic education designated in the schedule as 449, 650, and 651 were introduced into the curriculum at Ohio University in September 1967 to assist teachers in the Experienced Teacher Fellowship Program, 1967-68, in making direct translation of economic content into curricula suitable for elementary and secondary schools. Specifically, the experienced teachers were introduced to the importance of analyzing social disciplines in an orderly manner. Comprehensively coherent conceptual structures were presented, analyzed and compared. In each instance the framework was examined to discover (*1*) the unifying gestalts of the content, (*2*) the methods of social science inquiry implied, and (*3*) the relationship between the framework under consideration and other social science areas.

During both the summer and fall quarters, the Fellows in the program began to develop outlines and gather materials for a colloquium paper to be submitted during the spring quarter. The paper was to represent a synthesis of (*1*) classroom experiences, (*2*) knowledge gained through course work in economics and education, and (*3*) the ideas encountered in the economic education courses, and especially those ideas acquired from the guest speakers and the materials made available to the Fellows. During the winter quarter the economic education courses consisted of seminar sessions in which the Fellows presented the major structure of the colloquium papers that were in preparation. The completed papers are available on loan to Council and Center directors upon request to the OCEE.

The Practicum Experience. The stated rationale for the practicum experience was (*1*) for the Fellows to combine economic theory and educational learning theories in an internship and (*2*) to provide a special educational service to area schools. To accomplish this, the Fellows were expected to (*1*) inventory present social science curricula in the cooperating schools; (*2*) assist in the development of curriculum guides and materials; (*3*) relate these materials to innovative materials and techniques developed as part of the national research projects in the social sciences; (*4*) teach experimental units whenever appropriate; (*5*) participate in final evaluation plans; and (*6*) make use of these experiences whenever appropriate in the development of the required colloquium paper.

The Fellows were assigned to school systems in teams of three, consisting of one Ph.D. candidate, who served as the team leader, and two M.A. candidates. In an effort to assign the Fellows to appropriate school systems, each Fellow was asked to state his preferences as regards to grade level and type of school system, such as rural or urban. To avoid unnecessary competition for what could be considered more desirable school systems, say those closest to

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the University, the actual assignment to school systems was made by administrative decision. Team assignments were based upon (*1*) the expected compatibility of team members, (*2*) a balance of qualifications among the team members, (*3*) the nature of the choices made by the individual Fellows, and (*4*) the seven schools selected to cooperate with the practicum experience.

During the two quarters that the practicum was in session, there were no regularly scheduled classes as a part of the internship experience. The group did meet, however, in an opening orientation session and on a limited number of occasions throughout the two quarters to discuss matters of interest to all. Additionally, the practicum director scheduled team meetings with the cooperating school personnel to define the objectives of the program. Also, individual teams met with the practicum director for about one hour per week.

After making a study of the objectives and goals for improving instruction at the cooperating schools, the teams were requested to prepare and submit a contract for approval by the practicum director and the practicum coordinator from the cooperating school. In this contract the Fellows (*1*) described what they thought could be accomplished in the period of two quarters scheduled for the practicum, (*2*) developed a statement of objectives, (*3*) described the goals of the school district to which they had been assigned, and (*4*) indicated the specific steps or procedures they would follow to reach the goals they had set. A number of common features among the various programs included (*1*) teacher orientation to the role of economics in the social science curriculum, (*2*) the development of specific materials for use in the classroom, or a course of study for use in a district, and (*3*) methods for assuring follow-up activities once the practicum team left the cooperating school.

Group Process and Group Interaction. The special group process experience was developed in cooperation with the Department of Guidance, Counseling, and Student Personnel, College of Education, and designed primarily to (*1*) provide experience in group processes and methods, (*2*) provide group and individual orientation and initial awareness of the personal meanings helpful for teachers involved in a rigorous academic pursuit and (*3*) reduce anxieties and enhance the learning potential of the individual Fellows.

Furthermore, it was the purpose of the non-credit group process sessions to create an esprit de corps and establish solidarity among the Fellows.

The codirectors of the group process sessions worked under separate contract with the Department of Economic Education. Before the fall quarter in September, the Fellows were divided into three groups and met on a daily basis for six days. The daily meetings ran for approximately three hours per group, representing approximately eighteen hours of group process experience for each group. One group was led by one of the codirectors, a second group by the other codirector, and the third group by the codirectors jointly. In addition to the group meetings, individual conferences for each of the Fellows were held by the two consultants.

Original plans had called for a group session each month from October 1969 to May 1970. However, the content of the group sessions during the initial week and the variation of class schedules for the Fellows made it impractical to hold the monthly group sessions. Initial efforts to follow this plan resulted in low attendance and resistance to the group process experience. This resistance was in part due to the Fellows' heavy involvement in their academic work. When

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these conditions became apparent, the group process consultants altered the procedure to an individual counseling approach based on the Fellows' demands and availability.

During the group and individual sessions considerable time was spent assisting Fellows with their concerns in areas which were directly related to the ExTFP, including (*1*) academic concerns, (*2*) anxiety surrounding individual progress in the program, (*3*) interpersonal cooperation and support among the Fellows, including such areas as black-white relationships, doctoral-masters relationships, cooperative study arrangements, general social activities, and (*4*) competitiveness that resulted from the variability of educational and experiential backgrounds.

Besides the consultant service available through the codirectors of the group process experience, the Fellows had immediate access to the Associate Director of the program and were able to arrange meetings with the program Director whenever it was felt that the Director's services were necessary. Additionally, both the Director and the Associate Director of the program met regularly with the Fellows in the economic education courses scheduled throughout the year.

Communications Flows and Organization. Maintaining good relations among the Fellows and between the Fellows and the various individuals involved with the program made it necessary to establish clearly defined procedures and job descriptions. The Associate Director served as the ombudsman for the group, liaison to the program Director, and coordinator of the various components of the program.

Outcomes

Outcomes examined in the evaluation of the ExTFP included an analysis of the pretest-posttest responses to (*1*) the four parts of the *Test of Understanding in College Economics* prepared by the Joint Council on Economic Education in collaboration with The Psychological Corporation of America, and (*2*) the single form of the *Test of Basic Economics*, prepared by Dr. E.S. Wallace, Director, Nebraska Council on Economic Education. Statistically significant differences were observed between the pretest and posttest results.

An analysis was also made of the pretest-posttest opinions expressed by the Fellows in response to (*1*) *The Survey of Opinions on Economic Issues*, a 35-item questionnaire developed by committee members who participated in the Carnegie-Mellon Economic Education Workshop in 1969, and (*2*) the *Inventory of Economic Opinions*, prepared by Dr. Roman F. Warmke. Only slight shifts of opinions were observed in the pretest-posttest responses.

An analysis was made of the opinions expressed by the Fellows, the teaching faculty, and the program's directors in response to questions treating such topics as (*1*) the effectiveness of the program in meeting the needs of the Fellows, (*2*) the overall value of the ExTFP for upgrading high school instruction, and (*3*) the usefulness of subject matter versus methods and materials for future work.

Although the responses to these questions were generally favorable, a careful analysis was made of less favorable responses. Efforts were made to determine the causes for ineffectiveness or inappropriateness where such opinions were expressed.

Employment and status changes were analyzed to determine the effective-

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ness of the program upon the individual Fellows. Five of the seven Fellows in the Ph.D. portion of the program have stayed at the University to pursue their degree programs on a full-time basis. Some of the remaining Fellows accepted positions as administrators, curriculum supervisors, and department chairmen. Several of the Fellows, expressing a desire to implement new teaching techniques, returned to classroom teaching. In most instances, the Fellows realized salary increases upon completion of the program.

A final outcome component that was analyzed in the ExTFP evaluation included institutional effects, especially as related to the host institution. Although it was recognized that more time would need to elapse before final conclusions can be drawn, it was observed that the ExTFP helped to focus attention upon the need to promote special programs in economic education. The program, therefore, served to strengthen the programs for and institutional process of service to elementary and secondary schools that had been launched in 1953 with the formation of the Ohio Council on Economics Education.

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CHAPTER SIX

The Status of Research in Economic Education

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Joint Council on Economic Education

Starting with the 1969 issue, *Economic Education Experiences of Enterprising Teachers* has included a chapter on research in economic education. The response to this has been extremely favorable, so we are continuing to include this feature. This chapter will present an overview of the research situation and then give brief descriptions of recent research projects at all educational levels.

Overview

In the spring of 1968 the NYU Center for Economic Education began to list systematically all studies and research projects relating to economic education. Within a year, some 660 projects had been identified and listed in a booklet entitled *Research in Economic Education: A Bibliography*. With a grant from the Kazanjian Foundation, the NYU Center expanded its efforts and added over 200 more titles to the bibliography. A *Supplement* was produced in mimeographed form in 1970. Since that time an additional 61 studies have been identified, and the Joint Council on Economic Education has assumed responsibility for maintaining the list and for serving as an advisory and information center on this type of research.

Over 900 studies, then, have been completed or are in progress. As the chart on page 93 shows, studies of secondary level economics make up the largest number and percentage of the total, with college-level research coming in second. The chart is based upon the NYU bibliographies as of spring, 1970, but the addition of the 61 studies identified since that time would not change the rankings. (One percentage point would be added to the college level and subtracted from the secondary level.) Only seven percent have been at the elementary school level, while five percent have touched both the elementary and secondary levels; three percent have dealt with both secondary and college, and 11 percent are of a general nature not confined to one or two educational levels. (An example of the latter is an evaluation of the Kazanjian Awards Program which covered every level from kindergarten through graduate school.)

The chart also categorizes the studies by type. It should be noted that the term "research" was used very broadly in compiling the bibliography. The purpose was to identify any study that might add to existing knowledge of the status of economic education, not to quibble over what should or should not be classified as research. Thus, the studies range from simple fact-finding surveys involving little more than nose-counting (such as the number of schools in a given state offering separate economics courses) to tightly controlled evalua-

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CATEGORIZATION OF ECONOMIC EDUCATION RESEARCH AS OF SPRING 1970

Level \ Type	Descriptive; fact-finding surveys	Non-experimental evaluation & effectiveness studies	Experimental evaluation studies	Opinion and attitude studies	Lasting effect studies	Historical studies	Misc.*	Totals
Elementary school level	18 (29% of 63)	17 (27% of 63)	26 (41% of 63)	1 (1% of 63)	0 (0% of 63)	1 (1% of 63)	0 (0% of 63)	63 (7% of 864)
Elementary and secondary both	20 (51% of 39)	8 (21% of 39)	6 (15% of 39)	0 (0% of 39)	0 (0% of 39)	1 (3% of 39)	4 (10% of 39)	39 (5% of 864)
Secondary school level	150 (45% of 337)	80 (24% of 337)	27 (8% of 337)	22 (7% of 337)	0 (0% of 337)	10 (3% of 337)	48 (14% of 337)	337 (39% of 864)
Secondary and college levels both	8 (29% of 28)	15 (54% of 28)	1 (4% of 28)	1 (4% of 28)	0 (0% of 28)	0 (0% of 28)	3 (11% of 28)	28 (3% of 864)
College, adult, and teacher education	110 (36% of 306)	78 (25% of 306)	75 (24% of 306)	11 (4% of 306)	2 (1% of 306)	9 (3% of 306)	21 (7% of 306)	306 (35% of 864)
General (not limited to 1 or 2 levels)	41 (45% of 91)	27 (30% of 91)	3 (3% of 91)	2 (2% of 91)	0 (0% of 91)	4 (4% of 91)	14 (15% of 91)	91 (11% of 864)
Totals	347 (40% of 864)	225 (26% of 864)	138 (16% of 864)	37 (4% of 864)	2 (less than 1% of 864)	25 (3% of 864)	90 (10% of 864)	864

*Misc. refers to studies which do not fit any of the categories or studies which we were unable to get sufficient information about to classify.

tions and experimental studies employing the most sophisticated research designs and statistical analyses.

The placing of the studies in categories was somewhat arbitrary. Many studies could easily fit into two or more of the categories. If the emphasis in a particular study seemed to be upon evaluation, for example, it would be categorized as an evaluation study even though it also included fact-finding. Since it was impossible to examine each study, the title or a brief description

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provided by the author was often used to determine the proper category. The percentages assigned to each category, then, are approximations at best.

About 40 percent have been categorized as *fact-finding projects, surveys,* or *descriptive studies.* These studies do little more than indicate what exists. The simplest of these will involve a count of schools offering economics courses. Some merely survey the courses taught in various types of institutions (such as junior colleges); some attempt to ascertain the economics backgrounds of teachers at various levels; and some try to determine the economics knowledge of students and/or teachers. Although these studies appear to be simple, they are extremely important. If a Center or Council intends to work for the improvement of economic education in a given area, it must first know what the existing situation is. The results of these studies have often been profound. For example, the New York City Council on Economic Education has established in-service courses for New York teachers based upon a survey of the economics backgrounds of those teachers and of their expressed interest in furthering their economic knowledge. When a similar survey revealed that its teachers were far behind the public school instructors in their economic backgrounds, one large parochial school system set up special courses to remedy the situation. A large bank established economics courses for its personnel when a study showed that a group of employees in responsible positions were ignorant of some basic principles of money and banking and ranked with high school students in their overall knowledge of economics.

Thus, fact-finding studies are useful and necessary. Researchers must not be deluded into believing that they are easy, however, for there are pitfalls. Before tackling a study of this type, the inexperienced researcher should consult someone who has undertaken similar projects. One common fault, for example, is asking the respondent to a questionnaire to indicate the number of credits of college economics he has earned. The results can be misleading unless the questionnaire has spelled out what constitutes economics. One respondent may include his work in economic geography, while another may not. The questionnaire should list the types of courses the researcher wishes to define as economics, leaving sufficient space for the respondent to add more. The researcher should *not* leave it to the respondent to decide what is economics and what is not. This is but one of the many problems that the researcher can run into in doing a survey-type project.*

Twenty-six percent of the projects have been classified as *nonexperimental evaluation and effectiveness studies.* In studies of this type, the researcher selects an existing situation and attempts to evaluate or measure the economic learnings that result. For example, several studies have compared the progress made in introductory college courses by students who had high school economics with students who did not. Others have tested junior college students taking introductory economics, compared the results with those found in four-year colleges, and attempted to identify the factors which seem to have a significant effect on the learning of economics.

In these projects, no effort was made to set up matched groups, to control the type or amount of economics taught, or in any other way to restructure the classroom situation.

*The Joint Council on Economic Education will attempt to provide advice and information on research designs to those who request it.

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Experimental evaluation studies account for about 16 percent of the total. Here, the researcher sets up a controlled experiment in which one method of teaching is compared with another, or in which one sort of material is used in one class but not with a matched group of students. A number of variables will be taken into account and isolated, statistical analyses will be made, and the effectiveness of one teaching method or type of material will be compared with another.

Only four percent of the research projects have tried to measure *economic attitudes or opinions*. There are several evaluation studies which have included student attitudes toward economics as a variable, but we have limited this classification to those dealing with the student's attitude or opinion on various economic topics, problems or issues. For instance, one project tested student opinions on the free enterprise system before and after an introductory economics course to determine whether or not the course had an effect on those opinions.

Lasting effects studies (or *residual impact research*) account for fewer than one percent of the total. It should be noted, however, that several of the evaluation studies have included an element of residual impact measurement in their designs. We know of only two studies in which the major purpose is to determine how much economic understanding is retained after certain periods of time, such as one year, two years, or five years.

Historical studies might be considered a special kind of descriptive or fact-finding research, but we have categorized them separately where they clearly focus upon historical trends in economic education, such as the history of the teaching of economics in a certain state. Historical studies make up only three percent of the total.

Finally, about ten percent of the projects have been classified as *miscellaneous* because they do not seem to fit any of the other categories. Often, studies were classed as miscellaneous simply because we were unable to obtain sufficient information about them to determine where they belong.

Are any trends in evidence? In 1968, 42 percent of the listed studies dealt with economics in secondary schools, while 34 percent were concerned solely with the college or adult level. Now, however, the college-level projects account for about 36 percent of the total, while secondary-level research has dropped to 37 percent. During the past two years there has been a decided increase in economic education research at the college level. In fact, 66 percent of the projects added to the bibliographies in 1970 were at this level, and another 10 percent covered both secondary and college situations.

Several factors help to explain the trend toward more college-level research. First, many college economists are beginning to be concerned about the effectiveness of the introductory economics course. They fear that it has not been appealing to students and has had less than the desired impact on their economic understanding. Second, the development of the *Test of Understanding in College Economics* (hereafter referred to as the TUCE), developed by the Joint Council on Economic Education and published by The Psychological Corporation, has provided the college teacher with a nationally normed instrument that can be used to measure economic understanding. Third, the Joint Council on Economic Education has made a concerted effort to encourage experimentation in the college course: A workshop (for directors of Centers for Economic Education) was held at Carnegie-Mellon University, grants

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have been extended to colleges and universities to finance research, a "question bank" is being prepared, advice and information are provided to those contemplating research, and *The Journal of Economic Education* (first issued in 1969) is now providing a medium for the publication of research findings. Many projects have developed as a result of the 1969 and 1970 summer research workshops at Carnegie-Mellon University.

The fact that over 900 research projects have been completed or are in progress does *not* mean that the field has been covered adequately. Indeed, every study has raised as many questions as it has answered, most of the experiments should be replicated, and there is need for more work in each of the categories described above. The following sections will briefly describe some of the efforts that are being made in this vitally important area.

Research at the Elementary School Level

Donald Davison and *John Kilgore* of the Iowa Center for Economic Education have developed a primary test of economic understanding. The structure of the test is similar to that of the first-grade instrument created by Larkins.[1] Finding that a multiple-choice test consisting of pictures would be too time-consuming and costly, Davison and Kilgore adopted the "yes-no" format, in which the child responds with a "yes" or "no" to such statements as: "We can have all the goods and services we want since we have so many resources." Reversed items were prepared for each concept or piece of information to be tested. This is necessary to overcome the problem of the *acquiescence set* of young children, a phenomenon in which there is a tendency on the part of most youngsters to respond with a "yes" when they are guessing. The matched-item technique requires that the pupil reply "yes" to one statement and "no" to the matched item. In this way, the researcher can be sure that the child really understands the concept and is not simply making a lucky guess.

Initially, an experimental test of 138 items was constructed (69 matched pairs), and administered to a group of second-grade children using primary-level economics materials. The materials consisted of *The Child's World of Choices*, published by the University of Iowa in 1968; the student activity book related to *The Child's World of Choices;* and the accompanying Teacher's Guide. Item analyses were made, levels of difficulty determined, and indices of discrimination computed for each item. After comments on each item were solicited from educators and economists the number of statements was reduced to 39.

Next, a public school system in Iowa using economics materials in the primary grades was contacted so that a group of pupils could be obtained for further experimentation. The revised test was administered to about 100 children, further analyses were made, and the test was reduced to 32 matched-pair items. It is called *The Primary Test of Economic Understanding* (hereafter referred to as PTEU).

This revised instrument was now used to measure the effectiveness of the

[1] See A. Guy Larkins, "Assessing Achievement on a First-Grade Economics Course of Study." (Logan: Utah State University, 1968, Ed.D. dissertation.) For a brief description of the Larkins study, see Volume Six of *Economic Education Experiences of Enterprising Teachers*, pp. 65-68.

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materials and the effectiveness of an in-service program for teachers. The researchers also wanted to find out if pupils in *target-area schools* (schools populated by culturally deprived children and entitled to financial aid under Title I of the Elementary and Secondary Education Act) performed differently from children in nontarget schools. Finally, they wanted to know if age, sex, and reasoning ability were significant variables.

The experiment would involve 24 teachers and about 500 pupils in the Des Moines school system. Because of the difficulty in obtaining a truly random sample in public school situations, the *nonequivalent control group design* was employed.[2] Experimental and control groups were to be used, but the children could not be randomly assigned to these groups. Intact classrooms, however, *were* randomly assigned to the control and experimental groups. Teachers who had participated in DEEP (the Developmental Economic Education Project) were eliminated, and no two experimental classrooms were located in the same building. All test administration was handled by a principal or consultant, with the regular teacher out of the room. The teachers participating in the experiment were not given copies of the test, thus making it impossible for them consciously or unconsciously to "coach" their pupils or stress concepts contained in the test. An equal number of target and nontarget classrooms was included in the sample. The chart below describes the categories used in the experiment.

	Control	Experimental	
	C_1 Continue with regular social studies program	C_2 Use of *The Child's World of Choices*, including Teacher's Guide and Student Activity Book	C_3 Use of *The Child's World of Choices* (as C_2) *plus* in-service training sessions
Target-Area Schools	4 teachers and classes	4 teachers and classes	4 teachers and classes
Nontarget-Area Schools	4 teachers and classes	4 teachers and classes	4 teachers and classes

The pupils in the eight classrooms in control group C_1 would continue with the regular social studies program. Those in C_2 and C_3 would use *The Child's World of Choices* with the related materials (Student Activity Book and Teacher's Guide). Experimental group C_3 would differ from C_2 in that the teachers in C_3 would attend weekly in-service training sessions for the five weeks of the experiment. The C_3 teachers, then, received special instruction in the economic content of the unit.

[2] For an explanation of this design, see Donald T. Campbell and Julian C. Stanley, *Experimental and Quasi-Experimental Designs for Research*. (Chicago: Rand McNally, 1963, pp. 47-50.)

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Hanagan's *Test of General Ability* (hereafter referred to as TOGA), Form A, K-2, was administered to all pupils to determine their ability levels. This test does not require reading, arithmetic, or any other form of school achievement, but yields both an IQ score and a grade expectancy score. The TOGA also provides part scores for the child's information about the world around him and for his powers of abstract reasoning. These part scores were used to test the hypothesis that there would be a closer correlation between the pupil's scores on the TOGA reasoning test than on the TOGA information test.

The total number of pupils for whom scores on all tests were obtained was 504. An F-test for significance of classroom differences was made for the TOGA and for $PTEU_1$ (the PTEU pre-test).[3] Because significant differences in both the TOGA and $PTEU_1$ scores existed among classrooms, an analysis of covariance was required. For each classroom, the mean score on TOGA was used as the covariate, and the mean *change score* (that is, $PTEU_2$ minus $PTEU_1$) was used as the criterion variable. Thus, an analysis was made of the actual change scores for each class, and these change scores were adjusted to account for initial differences in ability as measured by the TOGA. The adjusted change scores can be seen as estimates of the actual amount of change that *would* have resulted if the experimental groups had had equal TOGA scores. The results indicate that both experimental groups (C_2 and C_3) made significantly greater gains than the control groups. They also revealed, however, that there was no significant difference between C_2 and C_3. In other words, the pupils whose teachers had not received special training did just as well as those whose teachers *had*.

The expectation that performance on the PTEU would be more closely related to reasoning ability than to information (as measured by the TOGA) was not borne out. The correlation between TOGA-information and $PTEU_2$ (post-test in economics) was .53, while that between TOGA-reasoning and $PTEU_2$ was only .45. The correlations between the children's economics scores and their age and sex were very low. Thus, at this level, age and sex had no practical significance in explaining achievement as measured by the economics test.

Pupils in target schools scored significantly lower on both the PTEU pre-test and post-test. However, when change scores were adjusted to assume that both experimental groups had equal TOGA scores, the amount of change between $PTEU_1$ and $PTEU_2$ was not statistically significant between the target and nontarget groups. Pupils in nontarget areas scored higher on both the TOGA and the PTEU and achieved higher change scores, but the target-area classes using the economics materials *did* profit from them. In other words, the materials were effective for children in both the target and nontarget areas.

It was concluded that the economics materials were a major factor in bringing about the achievement shown by the experimental groups. The fact that the in-service program appeared to make no difference is difficult to explain. It could mean that the training program was insufficient in content or length. It could imply that the materials provided all the training necessary for the primary teacher. Or, perhaps the untrained teachers were so motivated

[3] See E. F. Lindquist, *Design and Analysis of Experiments in Psychology and Education*. (Boston: Houghton Mifflin, 1953, pp. 173-174.)

by the project that their interest and zeal overcame the lack of special preparation. The pupil's score on the PTEU pre-test proved to be the best predictor of his achievement on the post-test (the correlation coefficient was .69).

Davison and Kilgore have shown that primary-level students can learn some economic concepts, and that growth in pupil understanding can be measured. Their findings also suggest that the materials provided for pupils and teachers are important, and that teachers may not need special training to do an effective job of teaching economics at this level. They rightly urge, however, that their experiment be replicated elsewhere and at different grade levels. Currently, the Joint Council on Economic Education is attempting to identify third-grade teachers throughout the nation who will administer the test to their pupils. With more norming data, the PTEU will probably become an extremely valuable instrument for evaluating primary-level economics programs.

Robert W. Pranis, Howard A. Sulkin, William D. Rader and others at the University of Chicago's Industrial Relations Center have continued with their work in economic education research at the intermediate school level.[1] These researchers have been concerned about the problem of teaching economics to students of various socioeconomic levels. They have also sought to ascertain the effect on student learning of teacher familiarity with economics materials. It has been found that elementary teachers are reluctant to include economics in their curriculum because of their own lack of training in that subject, but that many are willing to attempt it if some sort of in-service training is provided. The Industrial Relations Center offered a one-day training program in which staff members would go over the materials with the teachers, explain the rationale of the lessons, lead the participants through a simulation game, and answer any questions they might have.

The Center decided to investigate the effect of teacher acquaintance with their elementary economics materials. Teachers who had a year's experience with the materials developed by the Center were asked to teach the economics program for another year.[2] A number of teachers who had had experience with the program were available. Five teachers each were selected at random from schools in high, middle and low socioeconomic neighborhoods. Two new groups of teachers were also chosen from six other school systems. One group would get the materials and a one-day training program, while the other would get the materials but no training. The participating teachers were chosen at random, a table of random numbers being used for this purpose. The participating schools were located in six different states. The table below indicates the number and types of classes used in the experiment.

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[1] Information in this chapter is based upon Robert W. Pranis, *Teaching Economics in Elementary Schools: Comparing Program Vs. Non-Program Students and the Effect of Teacher Acquaintance with Instructional Materials.* (Chicago: Industrial Relations Center, The University of Chicago, 1970.) For brief accounts of the previous work of the Center, see Volume Six of *Economic Education Experiences of Enterprising Teachers*, pp. 68-70, and Volume Seven, pp. 86-89. Also see Howard A. Sulkin and Robert W. Pranis, "Evaluation of an Elementary School Social Studies Program," *Educational Leadership* (December 1969.)

[2] The Industrial Relations Center has developed materials for use in grades four, five and six. Student readings, workbooks, teacher's guides, tests and a simulation game entitled *Market* are included.

Table 1

The Number and Types of Classes in the Study

Socioeconomic Level	Classes of Experienced Teachers	Classes of In Service Trained Teachers	Classes of Non-In Service Trained Teachers	Total Classes Receiving Program	Control Classes
High	5	6	6	17	6
Middle	6	5	6	17	5
Low	3	5	5	13	5
Total	14	16	17	47	16

The Center's program *(Economic Man)* requires 40 minutes a day, five days a week, for 21 weeks. The tests used were those developed for the sixth-grade level. The items were based upon the concepts and generalizations contained in the program. The pre-test was made up of 62 items, while the post-test contained 56. The raw score results were converted to percent of number of items. The *Otis-Lennon Test of Mental Ability* (Form K) was used to measure the intelligence of the pupils. This test, along with the economics pre-test, was administered in January of 1969; the post-tests were administered in June. Only those children who had taken both pre- and post-tests were included in the study.

The researchers did not expect to find significant differences in intelligence *within* any socioeconomic level, but differences did occur. In the higher level there were no significant differences. In the middle level, however, pupils with experienced teachers were 2.95 raw score points below the control class, which proved to be significant beyond the .05 level of confidence. In the lower socioeconomic group, children with experienced teachers were significantly higher than the other two experimental groups.

A primary aim of the study was to ascertain whether students in all socioeconomic levels made greater progress in economics than comparable students in the control groups. The control classes did not receive economics

Table 2

Results of Pre- and Post-Testing for Program and Control Groups

Socioeconomic Level		Program Students		Control Students	
		Pre-Test	*Post-Test*	*Pre-Test*	*Post-Test*
High		$N = 164$		$N = 152$	
	Mean	38.62	49.31	36.65	37.49
Middle		$N = 159$		$N = 156$	
	Mean	39.15	48.23	36.66	36.10
Low		$N = 134$		$N = 132$	
	Mean	29.95	34.83	30.22	31.93

instruction, but some gains were expected because of maturation and improved reading ability over the course of the school year. The results of the pre- and post-testing are indicated in Table 2. The program students were those whose teachers had received no training or experience with the materials.

Clearly, the pupils receiving economics instruction made substantially greater gains. At all socioeconomic levels, the program (or experimental) groups made gains that were significant beyond the .001 level of confidence. The low-level control group made a gain of 1.71 points which was significant beyond the .05 level of confidence, but there is no apparent explanation for this. The slight gain made by the upper-level control group was not significant, while the middle-level group actually regressed.

The teachers were categorized as: (1) *Experienced* (those who had taught the economics program the previous year); (2) *Trained* (those who were new to the program but had been given the one-day training in addition to the materials); and (3) *Nontrained* (those who were new to the program and who received the materials without the in-service training). Table 3 below compares the gain scores of the classes by teacher category for each of the three socioeconomic groups.

Table 3

Comparison of Scores by Teacher Category

Socioeconomic Level		Experienced	Trained	Nontrained
High	Gain	14.41	10.52	10.69
Middle	Gain	7.02	7.54	9.08
Low	Gain	9.75	11.93	4.89

The differences between the experienced and inexperienced teachers were significant beyond the .01 level of confidence in the upper socioeconomic levels. There was no significant difference between trained and nontrained teachers at the upper level. Differences between teachers in the middle socioeconomic classes were not significant. In the lower socioeconomic areas, the difference between the experienced and nontrained teachers was significant beyond the .001 level of confidence, but there was no significant difference between the experienced and the trained teachers. Finally, at this level, there *was* a significant difference (.001 level of confidence) between the trained and nontrained teachers.

In summary, children who are taught the Chicago program learn significantly more economics than those who are not. (There was no significant difference in intelligence scores between experimental and control groups at any of the socioeconomic levels.) Pupils in low socioeconomic areas profit

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from the program, but do not gain as much as those at the middle and upper levels. Indeed, their mean score on the post-test falls short of the mean *pre-test* scores of the other two groups. It should be noted, too, that many teachers of the low socioeconomic classes reported much greater interest on the part of their pupils. The classes of experienced teachers in high socioeconomic areas showed the greatest gains from the program, while those of inexperienced teachers in low socioeconomic schools had the lowest gain. (The terms experienced and inexperienced refer to the teachers' familiarity with the economics program, not to overall teaching experience.)

At the middle socioeconomic level, the program pupils with experienced teachers were lower than the control pupils in intelligence test scores, but had higher gain scores on the economics tests. At the lower socioeconomic level, however, the program pupils with experienced teachers had higher intelligence test scores than the other two program groups at their level, but they achieved gain scores falling midway between the other two groups. Therefore, the pattern of differences in intelligence scores does not appear to relate to the pattern of differences in gain scores on the economics tests.

This study seems to have established that the Chicago program can be taught effectively, even by teachers who have had no previous experience in teaching economics and no specialized training. It is consistent with other studies showing a relationship between socioeconomic level and ability to learn economics, although further work in this area is needed. The results in regard to intelligence scores are somewhat puzzling. The efforts of Davison and Kilgore in Iowa and of the Industrial Relations Center group in Chicago are commendable steps in the right direction, but replication is certainly needed in both cases.

Under the direction of *C. David Crosier*, the Economic Education Enrichment Project of the West Springfield Public Schools in Massachusetts has embarked on a three-year program involving teacher training, curriculum development and the development of a sixth-grade test of economic concepts. Under this federally funded program, all elementary teachers received a 30-hour in-service training in which 15 hours were devoted to basic economics and 15 to the development of a framework for the integration of economic concepts into the social studies curriculum. The Test of Economic Understanding (published by Science Research Associates) was administered to the teachers on a pre- and post-test basis, and significant improvement was noted.

During the first year of the program the training sessions to involve teachers in the process of developing a framework for the integration of economic concepts did not seem to function effectively; there was a degree of confusion over the objectives to be achieved. During the first summer, however, the project team was able to write learning experiences to fit into the conceptual economics framework with the help of a group of elementary school teachers. By the end of the summer seven booklets were available, K-6, which were used by the teachers during the second year's in-training program. The availability of these materials made a major contribution to the improvement of the teacher training program.

As a result of the above-mentioned sessions devoted to curriculum development, it had become clear that the role of the classroom teacher in this area is somewhat restricted. Developing a framework is the role of the con-

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sultant, while the project leaders make sure that the consultant understands the teachers' needs. This led to the formation of a curriculum committee representing all elementary grades. The goal was to construct a truly integrated social studies curriculum in which concepts from other social science disciplines will be incorporated as the subject matter dictates. In kindergarten and first grade, for example, economics and sociology are combined in a study of the family. The program is designed so that teachers will start with things which are familiar to the pupils, such as the family; then, using objectives stated in the grade level curriculum guides, they select activities and materials from a variety of sources found in the classroom and school libraries to work toward the accomplishment of the objective. It is recognized that what works for one teacher may not work for another. A "continuous feedback process" has been started in which teachers will participate in on-going curriculum development.

Finally, the Economic Education Enrichment Project has developed a 40-item multiple-choice test for grade six. The test is designed to cover concepts included in the curriculum through the sixth grade. Originally, a "pilot test" of 30 items was administered to a small group of sixth graders. This enabled the researchers to identify weak questions and to see whether additional questions could be included within the thirty-minute time limit. Thus, the increase to 40 items, reflecting varying levels of difficulty and categorized as *knowledge* questions (14), *comprehension* (17) and *application* (9).

Three groups of students took the revised and expanded version of the test. The student population of 2488 was obtained from eight school systems in three states. The questions were designed to reflect seven categories —the household, business, government, exchange, technology, markets and the national economy—commensurate with the amount of material in each category included in the economics program. There was considerable variation in the results. The mean scores ranged from a low of 14.32 in one school system to a high of 18.29 in another. Item analyses were made and indices of levels of difficulty and discrimination were computed.

Further analyses will be made of the data gathered in the West Springfield experiment, and it is probable that the Joint Council on Economic Education will disseminate the test and its norming data in the near future.

Aside from the three projects described above, there appears to be little recent research at the elementary school level. The Baltimore City Public School System is preparing an *Economic Education Supplement for Elementary Grades*, and an evaluation is contemplated. Baltimore is also field-testing the sixth-grade program of the Industrial Relations Center of the University of Chicago, but no details are available on these projects at the moment. The Emerson Public Schools of Emerson, New Jersey, are revising the K-6 social studies curriculum as part of their DEEP program, but no date has been set for completion of the project.

Research at the Secondary School Level

Phillip Saunders of Indiana University has attempted to ascertain whether or not high school economics has a lasting impact.[6] His data were collected at

[6] See Phillip Saunders, "Does High School Economics Have a Lasting Impact?" *The Journal of Economic Education*, 2 (Fall 1970), 39-55.

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Carnegie-Mellon University over a period of nine semesters, from the fall of 1964 to the spring of 1969. Students in CMU's one-semester introductory economics course made up the population to be studied. This involved 2,137 students, about 24 percent of whom had taken economics in high school. Students who had taken high school economics received higher course grades in the college course. This group contained a larger percentage of engineering and science majors and reported a higher interest in economics after their college course. Yet, they also reported spending less time on their college course. All the preceding findings were statistically significant. On the TEU, students with a high school economics background achieved a higher mean score, statistically significant at the .05 level of confidence.

The new college-level test (TUCE) was given after the course in the fall terms of 1967-68 and 1968-69, and in the spring of 1969. Again, students with a high school economics background scored significantly higher. An item analysis yielded some interesting results, however. The TUCE contains three types of questions. On those items classified as "Recognition and Understanding" and on those in the category of "Simple Application," the students who had had high school economics achieved significantly higher scores. On the "Complex Application" items, however, the slight difference in favor of the high school group was not statistically significant.

In summary, high school economics did appear to have a small lasting impact on the time students spent in their college course, on their interest in economics, on their college economics grades, and on their performance on two standardized tests, the high school level TEU and the TUCE. Saunders warns, however, that it may be a mistake to place too much confidence in these conclusions. The high school group contained a disproportionately large number of science and engineering majors, students who tend to be the best at Carnegie-Mellon.

Accordingly, multiple regression analyses were made. Using course grades, time spent on economics, interest in economics, and instructor ratings as dependent variables, and holding other variables constant, high school economics was significantly associated with only one dependent variable—the amount of time spent on economics compared with other subjects. *Holding other variables constant*, high school economics did *not* seem to have a significant influence on course grades. Again holding other variables constant, however, high school economics background did add to the TEU post-test score, a result that supports earlier studies.[7] A previous high school course also appears to add significantly to the TUCE post-test score. The high school course does have a lasting impact on the "Recognition and Understanding" items in the TUCE, but not on the "Simple Application" or "Complex Application" questions.

Saunders concluded that high school economics, as currently taught, does increase the kind of understanding measured by the TEU and by the "Recognition and Understanding" questions on the TUCE. There is a need, however, to know more about the varying nature of these courses. It does not necessarily follow that students who have had high school economics can be placed in advanced college courses, or that they should be allowed to skip the introductory course. They may start their introductory college course with more understand-

[7] For a brief summary of earlier, related studies see Volume Six of *Economic Education Experiences of Enterprising Teachers*, pp. 72-75.

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ing than those who did not have the same high school experience, but Saunders and others have shown that they make substantial gains during the college course nevertheless. In other words, they still have a great deal to learn about basic economics, and to place them in advanced courses would (in most cases) probably put them at a great disadvantage.

Since the evidence shows that it is in the *application* areas that the present high school courses appear to be weak, the student needs more emphasis upon using and applying the analytical tools and concepts he has already learned. If separate sections are to be created in the introductory course for students who have had high school economics, those sections might better be based upon a pre-test performance and not simply on the fact that the individual took the subject in high school. If the pre-test reveals that a student has mastered many of the principles stressed in the traditional introductory course, then that student might be placed in a separate section in which he has the opportunity to apply those principles to the economic problems currently plaguing society.

Keith Lumsden, Director of the Economics Education Project in Great Britain, included an analysis of the lasting impact of secondary school economics in a study of economic education in the United Kingdom.[8] Using a test very similar to the TUCE, Lumsden tested 4,700 university students taking first year economics in 34 universities during the academic year 1969-70. Called the *Test of Economics Comprehension* (TEC), this 50-minute objective test contains 20 microeconomics and 15 macroeconomics items. A high score implies that the student should be able to approach a real-life problem, identify the economic issues involved, and select the most likely outcome or the most appropriate policy.

Lumsden's data were subjected to multiple regression analyses, the regression statistics showing how each variable affected the TEC score—other things remaining unchanged. It was found that students who had taken the so-called "A-level" economics in secondary school did substantially better on the TEC. The higher the grade achieved by the student in his "A-level" economics, the better he performed on the college-level TEC. The number of years that had elapsed since taking the "A-level" examination did not have a significant impact, implying that there was no loss over time of the knowledge gained in studying "A-level" economics. The student's opinion of his secondary economics course was not significant. That is, students who thought the course had been good did not do better on the TEC than those who had a less favorable view. Strangely, however, students who gave a poor rating to their economics teachers performed significantly better on the TEC. Other school subjects also had an effect on economic understanding. Those who had taken mathematics, economic history, and general studies (all at the "A-level") did significantly better. Having had an "O-level" (a lower level) economics course did not add significantly to the TEC score, nor did "A-level" history. "A-level" geography actually had a significant negative effect.

The value of secondary economics had been a subject of dispute in Britain, some leading university economists charging that it actually did more harm than good. Lumsden concluded that his study has removed all doubts—not only

[8] "Economics Education Project—Report on Preliminary University Study," *Economics: The Journal of the Economics Association* (Autumn 1970).

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does "A-level" economics give students a grasp of analytical principles, but even some of the related subjects give the university student an advantage over those who have not had similar courses. Lumsden suggests that, with good background information on the students, the universities can design a course which would avoid repetition of concepts learned in secondary school and build upon the knowledge that students bring with them.

A. Dennis Gentry has tested 1,162 noncollege-bound high school seniors in Indiana to determine their understandings in four major economic areas: (*1*) What does the economy produce and why? (*2*) Economic growth and stability. (*3*) The distribution of income. (*4*) Comparison of economic systems. Gentry used the TEU with his sample population, which was drawn from 27 high schools representing three different sizes and different geographical areas of the state. Students who had taken a formal economics course performed significantly better (at the .01 level of confidence) than those who had not. He found no statistically significant relationship between sex and level of economic understanding. Students who had completed a formal economics course in large schools had a better understanding of what the economy produces and why, economic growth and stability, and comparative economic systems. Apparently, the economics courses in large schools were more comprehensive than those in the medium-sized or small schools. On the other hand, the small schools did a better job of teaching economic concepts in work-experience programs. Medium-sized schools did not do as well as the small schools, but did better than the large ones in the work-experience programs.[9]

Noting that other researchers had found sex to be a significant variable, Gentry thought that the fact that his study was confined to terminal students might explain his finding that it was not significant. Joel H. Paul feels that the superior performance by males can be explained by the probability that as boys grow older they develop a greater interest in economics.[10] It will be remembered that sex was not significant at the elementary level either. The greater effectiveness of work-experience programs in small schools was explained by the fact that they seem to receive greater emphasis than they do in larger schools. In other courses (such as bookkeeping and other business-related subjects), Gentry asserts that only one teacher in 27 considered economic issues to be of sufficient importance to warrant discussion in their classes. Gentry also saw a need for greater use of current events in teaching high school economics.

The question of having separate courses for terminal students was discussed briefly by Gentry. He urges that economics be required of all high school students, but suggests that further research is needed to see if terminal students should have a different type of course (such as one stressing consumer economics instead of abstract analytical principles). In 1965 and 1966 the New York University Center for Economic Education conduted two surveys of "authoritative opinion" on this issue.[11] High school teachers strongly favored

[9] A. Dennis Gentry, "Economic Understanding of Non-College-Bound Seniors in Public High Schools in Indiana." (Denver, Colorado: University of Denver, 1969, Ed.D. dissertation.)

[10] Joel Harris Paul, "An Analysis of Economic Understanding in Selected Georgia High Schools." (Athens: University of Georgia, 1964. Ed.D. dissertation.)

[11] Single copies of these studies are on file in the Joint Council of Economic Education office. A brief summary can be found in *The Balance Sheet* (January 1967).

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a consumer-oriented course for terminal students, while college economists involved in the economic education movement insisted upon an analytical principles course for everyone. A similar study was made by Albert Alexander of the New York City Council on Economic Education in 1970. Each high school in New York City was asked to comment on a "working paper" entitled "Teacher's Guide and Calendar of Lessons—Economics I (Non-Academic)" developed by Edward C. Prehn. Within an analytical framework, Prehn's proposed course stressed a more personalized, descriptive and institutional approach, while the official course emphasized theoretical economics. Eighty-two percent of the respondents favored the modified course specifically tailored to meet the needs of the general (noncollege-bound) student. Many studies have shown that academic ability is highly significant in learning economics. What is sorely needed, however, is a study of just how much (and what type of) economics the less academically talented student can learn.

Gentry, who is now at Indiana State University in Terre Haute, plans to expand on his earlier work by including *all* Indiana public and parochial schools in a study entitled "An Inquiry of Practices Related to Teaching Economics in Public and Parochial Schools in Indiana."

The Winneconne School System in Wisconsin is continuing with its *Industriology* project, which was briefly described in Volume Seven of this book (pages 94-95). In 1968 Form A of the TEU was administered as a pre-test and Form B as a post-test to all boys eligible for the *Industriology* course. The mean scaled score for students who took the course increased by 5.1, while the increase for those who did not take the course was only 2.8. In 1969, Form B was used as the pre-test and Form A as the post-test. Students in the program gained about 4.5 scaled score points, while those not taking the course made no gains at all. These findings strongly suggest that economics can be taught in the industrial arts curriculum, but the process of developing the program and making further evaluations will continue for the next two years.[12]

David J. Schwartz of Georgia State University in Atlanta has developed a 50-item *Economic Intelligence Quotient Validation Test*, which emphasizes facts and concepts that should be of interest and practical value to the average consumer.[13] It has been administered to over 21,000 high school students in Georgia and Kansas. Too often, the results show an appalling ignorance of simple economic facts and concepts which should be known to any intelligent consumer. For example, 4,547 students took the test in 215 Georgia schools in 1969 and achieved a mean score of 26. One school achieved a mean score of only 11.32, while the highest for any school was 38.68. The test was failed by 82.7 percent of the students (that is, they missed 16 or more questions). Ninety percent were unable to determine the least costly repayment schedule for a short-term loan; 92 percent missed a simple question on Social Security; two-thirds were unable to solve simple problems involving carrying charges; over half did not know that the U.S. economy is based upon private enterprise; and

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[12] T. G. Emerson, *A Program Called Industriology*. (Winneconne, Wisconsin: Winneconne Community Schools, 1970.)

[13] David J. Schwartz, *Economic Intelligence Quotient Validation Test*. (Atlanta: Georgia State University Chair of Consumer Finance, 1969.)

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less than half were able to determine the best buy on cereal, although nothing more than simple division was required in the computations.[14]

Norman Townshend-Zellner and *Edwin Carr* of California State College at Fullerton have recently completed a study of high school economics textbooks.[15] In 1959-1960, the American Economic Association's Committee on Economic Education studied high school texts and concluded that none measured up to the criteria established by the National Task Force on Economic Education.[16] Townshend-Zellner and Carr found "substantial improvement" among the current texts when considered *as a group*, but six were evaluated as inadequate in most of the criteria. These six had their roots back beyond 1959-1960, or in the early 1960's. Although most of them cited the Task Force Report as their standard and guide, they were considered very clearly to be deficient. Six of the more recent texts were found to be adequate in terms of meeting most, if not all, of the AEA's criteria.

These researchers give the economic education movement much of the credit for the textbook improvements, because the movement has succeeded in developing an appreciation for economic understanding among educators, promoted in-service training for teachers, and demonstrated that economic concepts can be taught to youngsters. They fear, however, that the quality of the acceptable textbooks now "runs strongly ahead of the typical teacher's preparation in economics." They urge that more resources be allocated toward upgrading the high school teachers, that improvements be made in the materials, texts and methods used in teaching economics in the earlier grades, that materials for the slow learner be prepared (for the acceptable texts seem to be aimed at the superior student), and that more experimentation be encouraged in the high schools.

Walter E. Rutledge is planning a doctoral study entitled "An Analysis of Economic Understandings of Selected High School Seniors in the Atlanta Public Schools." This will be written at Georgia State University, and will attempt to determine how Atlanta students compare with a nation-wide sample; the effectiveness of twelfth-grade economics courses in Atlanta; the significance of parental occupations on the high school senior's understanding of economics; and the significance of the student's race. *Joseph J. Connery* of Steinmetz High School in Chicago is making a survey of the existing curriculum in the Chicago public schools in home economics, business education, mathematics and social studies to determine what economic concepts are being included. *Charles Farrand* of West Senior High School in Madison, Wisconsin, is experimenting with a computer game "The Market."

Although some commendable work is being done at the secondary school level, it is painfully apparent that a great deal more is needed. Over 60 percent of all research at this level is made up of fact-finding surveys, historical studies

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[14] "Continuing Study Shows H. S. Seniors Flunk Simple Economics Test," *Consumer Finance News* (November 1970), p. 18. (Reprinted from *Banking: The Journal of the American Bankers Association*, August 1970.)

[15] See "A New Look at the High School Economics Texts," *The Journal of Economic Education*, 2 (Fall 1970), 63-68.

[16] "Economics in the Schools: A Report by a Special Textbook Study Committee of the Committee on Economic Education of the American Economic Association," *American Economic Review*, Supplement (March 1963).

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and miscellaneous. Experimental work with various teaching methods and materials is all too rare (making up only about eight percent of all research at this level). It is essential that some effort be made to find out what methods and materials work best in secondary schools, how much and what type of economics can be taught to slow learners, how much can be taught in related courses (such as history, government and geography), and what can be achieved in the junior high school.

Research at the Junior College Level

The number of two-year colleges in the United States is increasing at an extremely rapid pace. In 1961 there were 678 junior colleges enrolling 748,619 students; by 1970 there were 1,038 with a total (full-time and part-time) enrollment of 2,186,272. By 1975, it is expected that there will be 1,225 junior colleges with an enrollment of 3,873,000, and that half of all college-bound students will be entering the two-year institutions. Enrollment should rise to 4,430,000 in 1980. Although junior colleges are clearly playing an increasingly important role in higher education, only 27 of the over 900 studies in economic education have dealt with these schools.

In 1969 the NYU Center for Economic Education made a nation-wide survey of economics in two-year colleges. It was found that 38 percent of the economics instructors in the sample population (703 instructors in 293 colleges) did not even have a bachelor's degree in economics, and that only 43 percent were teaching economics on a full-time basis. Only three percent held doctorates in economics.[17]

With the assistance of the New York City Council on Economic Education, the NYU Center began an evaluation study of the teaching of economics in junior colleges in the New York metropolitan region during the 1969-70 academic year. Only one of the seven public junior colleges in New York City and one of the public colleges on Long Island agreed to participate in the study, although anonymity was promised.

At the beginning of their one-semester course in introductory economics, 377 students took the TEU (Form A) and completed a one-page background questionnaire. Each of the four instructors involved in the study filled out a questionnaire on his economics and teaching background. At the end of the course, the test was administered again (Form A was also used as the post-test) and the instructors completed another questionnaire indicating what textbooks they had used, what assignments they had required, and what the major content emphasis of the course had been. In both colleges there was a student loss of 34 percent. That is, 34 percent of the students who had taken the pre-test did not take the post-test. In some cases this was because students had dropped out; in other cases the students were absent when the post-test was administered. Thus, a total of 248 students took both the pre-test and the post-test. The New York City college accounted for 79 of these; the Long Island college for 169.

The mean score achieved on the pre-test by students who did *not* take the post-test was almost identical with those who took both tests—25.050 and 25.032 respectively. Nevertheless, only the scores of those who took both tests

[17] George G. Dawson, *Economics in Two-Year Colleges*. (Bethesda, Maryland: ERIC Document Reproduction Service, 1969.) Some of the results can be found in *The Journal of Economic Education*, 2 (Fall 1970), 14-38.

were included in the final analyses. These 248 students achieved a mean score of 25.032 on the pre-test and 28.359 on the post-test—an average gain of 3.327 raw score points. (About 22 percent of the students scored *lower* on the post-test than on the pre-test, and another seven percent achived the same score both times. It would appear that about 29 percent, then, failed to profit from their course, if we assume that the TEU is a proper instrument in this case. It should be noted, however, that student unrest was beginning on campuses about the time the post-test was administered. Many students might have felt that the test would not affect their course grades; others, perhaps, did not care.)

As compared with a number of other groups, the junior college students revealed a low level of achievement in economic understanding. When the NYU Center administered the TEU to 1,252 students in seven colleges in New York State, the lowest mean score achieved by any of the colleges was 29.84. This is the mean raw score achieved by 536 students at a four-year college *before* taking an introductory economics course. Thus, the junior college students in this sample, *after* they had completed a one-semester introductory economics course, achieved a mean score below that of four-year college students who had not yet had a college course. In fact, their post-test mean score was below that of 1,834 high school seniors who had taken a high school economics course. Of course, the junior colleges often accept students of low academic ability, a fact that undoubtedly helps to explain their poor showing. Some students did achieve high scores, and did make very substantial gains. If the brighter junior college students are placed in separate classes or sections, they will probably do as well as students in the four-year colleges.[18]

Several variables were taken into account in an attempt to explain the results. One was *high school economics*. A formal economics course had been taken in high school by 112 of the students, or 45.2 percent of the total. On the pre-test these students achieved a mean score of 25.241, while the other students recorded a mean of 24.934. On the post-test, however, those who had *not* had high school economics actually achieved a higher mean score than those who had. The former achieved a mean of 28.676 on the post-test; the latter, 28.062. These differences are not statistically significant. Most studies have shown high school economics to be a significant variable. The fact that it made no difference in this case is probably a reflection on the academic ability of the students rather than on the high school courses.

The *college attended* was not significant. Less than a point separated the mean scores on both the pre-test and the post-test. The average gain made by students in the New York City college was 3.481 as compared with 3.196 for the Long Island group, but this was not statistically significant.

It was thought that the student's *major field* might be of some importance. About half were majoring in Business Administration or closely related subjects; the rest were scattered over many subject areas. The business students were expected to do better, for it was assumed that economics would have more meaning and relevance for them than for most of the other students. This proved *not* to be the case. On both the pre-test and post-test the business students achieved lower mean scores, and they also failed to make as much of a gain as

[18] Studies made by Professor Fred Thompson of Riverside City College in Riverside, California, seem to support this. For example, see Fred A. Thompson, W. A. Walthal and T. B. Merson, *Economics Education in California Junior Colleges: An Exploratory Study*. (Washington, D.C.: Office of Education, 1967.)

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the others. The business students gained only three raw score points, while the other students made a mean gain of 3.352. None of these differences were significant. (In a recent doctoral study of a university business education program, it was found that many of the business students dislike economics "a great deal.")[19]

Sex has often been found significant in other studies. College-level research has usually shown that females do not learn economics as well as males. This was not true in the junior college study. Girls achieved a slightly lower score on both the pre-test and post-test, but they did make a greater gain—3.727 raw score points as compared with 3.178 for the boys. These differences were not significant, however. (A much larger percentage of males were in their first semester of college, and this proved to be a significant factor.)

The *instructors' formal preparation in economics and teaching experience* were also considered. The instructor with the fewest credits in economics and the least amount of college teaching experience seemed to get the poorest results. His students achieved the smallest gain. The percentage of his students who regressed was higher than that of any other instructor. Nevertheless, the differences between teachers were not statistically significant.

Two different *textbooks* were used by these students. The group using Samuelson achieved a mean gain of 3.538, while those using McConnell gained 3.260. The difference is not significant.

Three variables proved to be significant—*academic ability* (as measured by grade point average), *performance on the pre-test*, and *extent of college experience*. Cumulative grade point averages were used as measures of academic ability because no other scores (such as ACT or SAT scores) could be obtained. Scores on the pre-test were related to cumulative grade point average well beyond the .01 level of confidence. Grade point average was even more significant in explaining the post-test performance, and the higher the grade point average the greater the gain made. This, of course, is not surprising. As many other studies have shown, students of higher academic ability do better on economics tests. Pre-test performance was also significant well beyond the .01 level. "Extent of college experience" refers to whether or not the student was in his first semester of college. The student's chronological age was probably not important. In fact, the mean age was 19, and only 17 percent deviated from the mean by more than one year. But, regardless of chronological age, the student who had survived one or more semesters had a distinct advantage over the incoming freshman.

An *item analysis* was made to acertain which questions were missed most often. Improvement was shown in 39 of the 50 items (78 percent of the questions); that is, fewer missed those items on the post-test than on the pre-test. There was no change in one item, and the group actually regressed on 10 items (20 percent). It should be pointed out, however, that a one-semester course does not cover all of the subjects found in the TEU. On the pre-test the majority of students missed 24 of the items, while on the post-test the majority missed only 16. Table 1 shows the items missed by the majority on the post-test, and compares the pre-test and post-test performance on each.

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[19] Alfred L. Kaisershot, "An Appraisal of the Undergraduate Business Teacher Education Program at the University of Nebraska: A Follow-Up of the Graduates, 1959-1969." (Lincoln: University of Nebraska, 1970. Ed.D. dissertation.)

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Table 1

Items Missed by the Majority on the Post-Test

Item (topic)	Wrong on pre-test	Wrong on post-test
Government and freedom of choice in private enterprise. (7)	167	174
Effect on monopolies. (13)	191	167*
Share of market controlled by 100 largest firms. (16)	210	189*
Balance of payments deficit (definition). (22)	197	201
Effect of tariffs. (23)	154	162
Business fluctuations and changes in investment spending. (29)	199	179*
Origin of commercial bank deposits. (34)	158	167
Effectiveness of monetary policy. (35)	185	190
Relationship between wages and worker productivity. (41)	175	173*
Government's agricultural program. (43)	188	191
Explanation of the farm problem. (44)	188	170*
Characteristics common to both communism and private enterprise. (46)	175	160*
Comparison of communism with democratic socialism. (47)	138	133*
Interpretation of charts showing GNP, CPI and unemployment. (48)	192	170*
Meaning of consumer price index. (49)	134	131*
Analysis of charts showing GNP, CPI and unemployment. (50)	185	186

Note Number in parentheses indicates number of item on Form A of TEU. Items starred (*) are those in which some improvement occurred.

The study of the New York junior colleges, which was conducted by the editor of this book and *Dr. Irving Bernstein* of New York University, involved only a minute sample of junior college students. The sample population might not be representative of all two-year colleges in the United States. Obviously, then, similar studies should be made throughout the nation.

Thompson's studies in California lend some support to the New York findings.[25] Students at one junior college in Riverside City achieved mean pre-test scores not significantly higher than those obtained in the New York colleges. Other groups in the same college have achieved pre-test scores as high as 31.1 on the TEU. The high-scoring classes were probably not typical, however, for

[25] Information obtained from several unpublished papers by Fred A. Thompson evaluating economics courses in Riverside City College, Riverside, California.

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Thompson points out that "in the same classroom one finds students who have 8th grade aptitudes, and students who could qualify for admission to some of the best four-year universities."[11] It is interesting to note that sex was not a significant variable in the California studies either. The mean score for minority group students was 27.1, as compared with 34.8 for white students. This does not imply that members of minority groups have less innate ability, but probably reflects disadvantages associated with their socioeconomic status. In any event, Thompson concluded that the minority group student seemed to present a "distinct educational problem." Indeed, he felt that the vast majority of community college students represent a serious challenge.

In New York there are tentative plans for a replication of the study using different colleges. Other variables will probably be included, such as the student's socioeconomic status and whether he is a terminal student or planning to enter a four-year school. About 12 percent of the junior colleges in the country have a separate economics course for the terminal student, and studies should be made to determine the content and effectiveness of these special courses. In New Jersey and California there are plans to develop a new junior college economics course which will relate economic analysis to current social problems. Undoubtedly, some sort of research and evaluation will be made.

Research in the Senior Colleges and Universities

Because of the large number of studies recently completed or in progress at this level, only a small sample will be described in this section. Consideration will be given first to several of the studies that were reported as being planned or in progress in the 1970 edition of this book.

Peter Sloane of Clark University in Worcester, Massachusetts, tested the significance of student characteristics, instructional methods and student attitudes in a small teacher training institution. A hybrid version of the TUCE was used as the pre-test and post-test for 329 students in a required, one-semester course in Principles of Economics. The Illinois Course Evaluation Questionnaire was used to measure attitudes. Based upon a core approach, the course covered two analytical models (perfect competition and income determination) and two applications (market structure and government control, and stabilization policy). Instead of a standard text, the students used an outline equivalent to a set of lecture notes with appropriate diagrams. Three instructors of varying experience were involved. The experiment also included a test of a noncomputerized version of TIPS, the Teacher Information Processing System developed by Allen Kelley of the University of Wisconsin.[12]

Sloane's findings confirmed other studies with respect to the significance of sex, academic ability (as measured by the college entrance examination score), and pre-test score for the group as a whole. The verbal SAT score was highly significant, but the quantitative score was *not*. The student's present performance as measured by cumulative grade point average was significant, as was his interest in economics. There was a negative relationship, however, between the

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[11] Fred A. Thompson, "Problems and Prospects of Economic Education in Community Junior Colleges," *The Journal of Economic Education*, 2 (Fall 1970), 31-38.

[12] See Volume Seven of *Economic Education Experiments of Enterprising Teachers*, pp. 97-98, and Allen C. Kelley, "An Experiment with TIPS," *The American Economic Review*, 59 (May 1968), 446-457.

importance that students attached to economics at the beginning of the course and their post-test scores. The TIPS part of the experiment did not yield significant results in the overall regression, probably because of contamination. That is, students involved in the TIPS sections could not be isolated, and they probably gave information, advice and assignments to friends who were not in those sections. Contrary to other studies, the instructor coefficients were highly significant. The instructor with the greatest experience appeared to have been most effective, as indicated by the post-test scores.

High-scoring students (the top 27 percent on the pre-test) were analyzed separately, as were low-scoring students(the bottom 27 percent). For the high scorers, verbal SAT score, cumulative grade point average, and pre-test performance remained significant, but class replaced sex as a significant variable. That is, seniors did better than juniors, and the factors of student interest in economics, importance attributed to the subject, and instructor were no longer significant. For the low-scoring group, cumulative grade point average was the only variable that remained consistently significant. Class again replaced sex with upperclassmen doing better than lower. Thus, for both groups class and cumulative average were significantly related to post-test scores, and length of time in college replaced sex as a significant variable.

High school economics and instructor proved significant for the low-scoring group but not significant for the high-scoring group. Although high school economics did not appear to help the high-scoring students nor inexperienced instruction to hurt them, the results suggest that high school economics may have helped to offset weakness in instruction and thus provided an "underpinning" for the student.

Turning to student attitudes, it is interesting to note that the more difficulty the student expected to have with economics the higher he tended to evaluate the instructor. When variables for student interest and attitudes toward method of instruction, course content, the course in general and the instructor were inserted in the overall equation, significant results were obtained. In this latter regression the instructor variables were removed to avoid any multicollinearity. Contrary to other studies the data indicate that student attitudes are important in explaining student performance as measured by post-test scores. The weight of the evidence indicates that the instructor and the attitudes of the student are important in explaining performance.

When separate regressions were run for two experienced instructors, one who lectured and one who conducted a discussion section, student attitudes did not affect performance for the former but did appear significant for the latter. The lecture results support the conventional wisdom that student attitude does not change cognitive outcomes. Maybe this result is because the learning process is one of telling, recording and regurgitating. It is comfortable and lacks real challenge. Discussion and interaction, on the other hand, is not necessarily comfortable. If the student can be involved, however, the indication is that cognitive outcomes may be improved. Sloane concludes that a great deal more experimentation is needed with respect to instructional strategies and their impact on attitudes and learning outcomes. Maybe lectures, TV, programmed learning or leaving the student to his or her own devices is not the best way to teach economics. Maybe interaction and student involvement is.

Frank W. Gery of St. Olaf College in Northfield, Minnesota, addressed him-

self specifically to the Moyer-Paden findings[23] in regard to mathematics when he tested 155 students at St. Olaf College. Gery thought that verbal aptitude might be more important than mathematical aptitude in predicting success on the TEU or the TUCE, and that courses other than mathematics might be significant. The substitution of more mathematics courses for an equal number of humanities and social science courses might reduce the student's potential for economic understandings. Mathematics could still be significant, but be *less* so than other variables. (The Moyer-Paden equation suggested that economic understanding is inversely related to the number of mathematics courses taken.)

Gery argues that the negative sign for mathematics obtained by Moyer and Paden can be explained by the probability that the number of math courses taken is apt to be a subject of class standing, and that it could be the effect of taking more math courses in place of other courses that might have a greater impact on TEU scores. He concluded that mathematics might be a poor substitute for certain other courses, not that more math *per se* causes a decrease in economic understanding.[24] In reply to Gery, Moyer and Paden agreed that by including nonmathematics courses in the equation the mathematics variable would become positive. When they added American College Test (ACT) composite scores, however, the coefficient for mathematics again became negative. ACT subscores in English, social science, mathematics and natural science were also examined by Moyer and Paden, and it was found that each is individually related to TEU scores. The major issue involved in these studies is: "What set of skills and abilities is most important in helping students understand economic principles?" Moyer and Paden conclude that skills and ability in the natural sciences (which presuppose some facility in mathematics) are of greatest significance in explaining student achievement in an economics principles course, that the social sciences are next in importance, and that ability in English and mathematics (independent of such skills implicit in the natural and social sciences) is of minimal importance.[25] It is doubtful that we have heard the last word on this subject, however.

Dennis Weidenaar of Purdue University in Lafayette, Indiana, has attempted to measure the effectiveness of various media and motivational devices in the introductory economics course. Over 300 students were involved in a controlled experiment using programmed instructional materials in recitation sections. Two of the three weekly meetings of the course consisted of large lecture sessions; the third consisted of weekly recitation sections of about 30 students each. The recitation sections were divided into two groups:

Group R: Seven sections in which concepts discussed in the lecture sections were clarified and applied, and student questions pertaining to workbook assignments were answered.

Group P: Seven sections in which programmed materials were used exclusively. The purpose of the experiment was to measure the effectiveness of programmed materials in place of graduate teaching assistants. Part I

[23] M. E. Moyer and D. W. Paden, "On the Efficiency of the High School Economics Course," *The American Economic Review*, 58 (September 1968), 870-877.

[24] Frank W. Gery, "Mathematics and the Understanding of Economic Concepts," *The Journal of Economic Education*, 2 (Fall 1970), 100-104.

[25] M. Eugene Moyer and Donald W. Paden, "Economics Achievement and Mathematics Training," *Ibid.*, 104-106.

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(Form B) of the TUCE was administered, along with three other multiple-choice examinations. Table 1 shows the pre-test and post-test results on the TUCE for the groups.

Table 1

Pre-Test and Post-test Scores on TUCE

Group	*n*	Pre-Course-Test Mean	Post-Course-Test Mean
R	154	13.00	20.43
P	152	12.53	20.01

None of the differences indicated in Table 1 is significant at the .05 level of confidence.

On the basis of their pre-test TUCE scores, the students were classified as belonging to high-, medium-, and low-scoring groups. All three groups achieved lower scores when exposed to programmed instructional materials rather than graduate student teaching assistants. However, evidence indicates that the negative regression coefficient between the low group and the post-course TUCE score was smaller than that for the medium and high groups.

Weekly attendance records were kept in all recitation sections. Groups with the least absences generally scored higher than those with moderate or high absence records. Attendance proved to be a statistically significant factor in student performance, although it is possible that this is a reflection of motivation rather than attendance *per se*.

Finally, student attitudes toward the course and the programmed materials were solicited. Student interest in economics shifted from "average" at the beginning of the course to "above average" at the end to a sizeable degree. Attitudes toward the importance of understanding economics remained the same, but—strangely—the percentage of those strongly agreeing that economics should be required rose from 12 to 25 percent. Programmed materials did not prove to be interesting to the students. In summary, the TUCE revealed no significant differences in mean scores achieved by the two treatment groups, but attendance was significantly associated with good test performance.

William Luker of North Texas State University in Denton has tested the following hypotheses:

1. There is no relationship between knowledge of economics and dogmatism as measured by the Rokeach Dogmatism Scale.*
2. There is no relationship between knowledge of economics and opinionation as measured by the Rokeach Opinionation Scale.**
3. There is a positive relationship between economic knowledge and conservatism.***

All students enrolled in the macroeconomics and microeconomics course during

*The Dogmatism Scale shows the extent to which an individual is open or closed. An open person is one who can take facts, integrate them, and change behavior accordingly.

**The Opinionation Scale measures the extent to which an individual rejects people who think differently.

***The conservatism scale, which is derived from the Opinionation Scale, measures one's commitment to existing institutional relationships.

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the spring 1970 semester were tested with the TUCE. A multiple regression analysis was used, and all three of the hypotheses were accepted. The finding that there is indeed a significant (at the .05 level) positive relationship between conservatism and economic knowledge is most interesting. The 306 students were tested before they had taken their economics course, however. Luker also plans to find out if there is a relationship between economic knowledge and a *change* in dogmatism, a *change* in opinionation, and an *increase* in conservatism. One might also wonder if the same results would be obtained with a group of students from a different section of the country. Luker's study is a fascinating piece of research and should be widely replicated.

Darrell Lewis and *Tor Dahl* of the University of Minnesota in Minneapolis have recently completed some research on the TUCE itself. Nearly 800 students in the introductory macroeconomics course were subjected to the TUCE (Part 1, Forms A and B) and to the Watson-Glaser Critical Thinking Appraisal, on a pre- and post-test basis. This study confirmed the validity of TUCE as a test of economic understanding. In fact, it was found that TUCE discriminates more effectively for the student of higher academic ability, that there is no "ceiling effect," and that high scorers on the pre-test were apt to be high scorers on the post-test as well. There was a satisfactory correlation between the students' scores on the TUCE post-test and their final course grades.

The TUCE can be divided into three subparts—Recognition and Understanding questions (RA), Simple Application questions (SA), and Complex Application items (CA). Lewis and Dahl found that these classifications are valid in that the three subparts can be differentiated when referenced to such critical thinking skills as measured by the Watson-Glaser Critical Thinking Appraisal (CTA). As expected, the Recognition and Understanding questions were found to represent the less general conceptual skills as measured by CTA. Simple Application items were found to have a stronger influence on the CTA than Complex Application, however. This is an important conclusion, for some researchers using the TUCE have imputed a higher educational value to the CA questions and have assumed that they measure a higher order of reasoning ability. Lewis and Dahl do not deny that CA items may have higher educational value, but assert that those using the TUCE will have to rationalize this higher value on the basis of criteria other than critical thinking skills and reasoning abilities measured by CTA.

Student performance on the inference, deduction and interpretation aspects of the CTA was significantly associated with post-test performance on the TUCE at the .05 level of confidence. Student performance on the TUCE is considerably *less* associated with ability to discriminate on the basis of recognizing assumptions or evaluating arguments, as measured by the Watson-Glaser instrument. The recognition of assumptions *did* associate significantly with the Simple Application items on the TUCE, however. At a 10 percent level of significance, all five parts of the CTA (inference, deduction, interpretation, recognizing assumptions, and evaluating arguments) were associated with the Simple Application portion of TUCE. The correlation coefficients for each of the CTA parts were *lowest* for Complex Application items on the TUCE. Thus, the TUCE Simple Application questions are more closely associated with abilities measured by the CTA than either the Complex Application or Recognition/Understanding items. Student performance on Recognition and Understanding

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questions was significantly associated with both inference and deduction ability as measured by CTA, and the RA portion of TUCE had a higher correlation coefficient than Complex Application with all five parts of the CTA. This was seen as confirmation of the TUCE Committee's rationale for including RA questions in the test. In other words, RA questions *do* test understanding and comprehension, and not just simple recall.

In summary, the Minnesota experiment suggests that Simple Application questions on the TUCE have the most significant association with critical thinking ability as measured by the CTA, and that even the Recognition Understanding items have a higher association with critical thinking than the Complex Application questions. It was concluded, then, that the CA types should be changed, rationalized on some other basis, or subjected to further testing. Very probably, the publication of this study will result in the latter.

Phillip Saunders of Indiana University (formerly of Carnegie-Mellon University) has attempted to find out if the students of instructors who receive high ratings (from students) learn more economics than those of instructors who have been rated low. His study was limited to the required one-semester economics course at Carnegie-Mellon University over a period from fall 1964-65 to spring 1969. Anonymous student evaluation questionnaires were collected at the end of the course, along with information on the student's sex, division, cumulative grade point average, high school economics background, time devoted to the study of economics, and present interest in the subject.

The TEU was used on a pre-test, post-test basis between 1964 and 1966. Afterwards, the TUCE, Part 1, was used. (TUCE was not available earlier.) Instructors who received a mean rating of over 4.00 on the five-point rating scale were considered to have been rated "high." During the three terms in which the TEU was administered, seven of the 26 instructors received high ratings. These instructors taught 24.74 percent of the 776 students covered during that period. When the TUCE was given, four of the 20 instructors received high ratings, and these individuals taught 27.90 percent of the 524 students tested.

Using the TEU as a measure of student learning of economics, and holding the other variables constant, the students of high-rated instructors scored significantly better than other students. The same result was obtained when the TUCE was used. Instructors who had received mean ratings below 3.00 were categorized as "low." During the period when TEU was used, eight of the 26 instructors were rated low, and these persons taught 25.90 percent of the 776 students. When TUCE was being used, four of the 20 teachers were rated low, and they taught 14.61 percent of the students involved. Using TEU, the students of instructors receiving low ratings did *not* score significantly lower, nor did they score significantly higher, than others. When TUCE was used, however, the students of low-rated instructors *did* score significantly lower.

Saunders concluded that instructor ratings do seem to be significantly related to how much students learn. Furthermore, the amount of the difference was seen as being substantial. The gain made by students with good (high-rated) instructors was considerably larger than that made by students with poor instructors, other variables being held constant. Although this study was confined to one college which may not be typical, it was felt that student ratings of instructors appeared to be based on "firm ground." Saunders suggests that

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"efforts devoted to improving instructor performance in the classroom (as measured by student ratings) may pay substantial dividends in terms of student learning."

David Martin of the State University of New York at Geneseo has been studying the relationship between student satisfaction with an introductory course using TV and live discussion classes and student assessment of the effectiveness of the live instructor.[26] The students found the TV lectures to be "less than enthralling," but Martin noted that student evaluation of the TV portion of the course varied closely with student assessment of the live instructor in the discussion portion. Although students liked TV less than other means of instruction, they disliked it *less* when they liked the live instructor. The TV course did succeed in teaching basic principles, however, for results on the TUCE were favorable. The percentage gain between pre- and post-test was above that of the national norming sample. The gain for the complex application questions was four times that of the national norming sample, an encouraging outcome in view of the fact that the TV lectures had concentrated upon the complex application areas. Student evaluation of the discussion class, student interest in economics, and satisfaction with the printed materials used were all related to evaluation of the live instructor. Although it is clear that TV can convey economic knowledge, 67 percent would have preferred live instruction. Martin suggests that TV be used to supplement rather than replace live instruction.

The sample of college-level studies presented here is indicative of some of the interesting research being done in higher education. As students demand a greater voice in curriculum development and change, and as they become involved in course and faculty evaluation, the pressures for improvement in instruction may become ever greater. Too often, curriculum changes, course revisions, and the utilization of new methods and materials for teaching economics have been based upon nothing but guesses and prayers. This may help to explain the many failures of the past. It may help to explain why, in one major eastern university, some 800 students enroll in Economics I but only 100 appear for Economics II—and most of those are business students who are required to take six credits. Few can honestly deny that the teaching of economics needs improvement, but attempts to bring about change must be accompanied by rigorous and scientifically controlled evaluations. Some outstanding work is being done by the researchers mentioned in this chapter. Let us hope that this is but a beginning.

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[26] For a brief description of the experiment with TV at Geneseo, see Volume Six of *Economic Education Experiences of Enterprising Teachers*, pp. 87-88. Information appearing in this chapter was provided by Professor Martin.

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